BULLETIN

MADRAS DEVELOPMENT SEMINAR SERIES

VOLUME II NUMBER 11 NOVEMBER 1972

74, SECOND MAIN ROAD, GANDHINAGAR,

ADYAR, MADRAS-20.

MONTHLY BULLETIN

Vol. II No. 11

CONTENTS

			Page
1.	Editorial—Some Highlights	...	1
2.	Final Decision of the Seminar on the Techniques of Perspective Planning	...	39
3.	A Summarv Report of the Seminar on the Techniques of Perspective Planning	...	44
4.	Application of Scientific Methods and Family Planning *By C. D.Rajeswaran*	...	52
5.	Small Industries in the Fifth Plan	...	77
6.	Book Review	...	84

1973 — SUBSCRIPTION

The Bulletin will be two years old in January, 1973. If you wish to continue to receive this journal, please fill in the form below and send it so that it will reach the Institute, in the case of readers in India, before 31st December, 1972 and in the case of readers abroad, before 28th February, 1973.

I/We would like to receive the Bulletin of the Madras Development Seminar series regularly for which I am/We are sending you the annual subscription of Rs. 9/- U.S. $ 1.50 by money order/postal order/cheque.

Name : Signature

Address :

N. B. : Strike what is not appropriate.

EDITORIAL — SOME HIGH LIGHTS

General Economic Scene :

State :

Perspective Plan : Perspective planning in the State moved a stage further with the first wide public discussion, at the end of October, of the Draft Perspective Plan Frame. (See 1st article in this issue). The seven objectives of the Plan Frame were fully endorsed. The major issue is the continuing debate between an accelerated rate of growth as a means of raising the levels of living of those in the poverty sector as against a direct frontal attack against poverty even at some cost to growth rates. The emerging consensus is a double one, namely that of accelerating growth in all sectors of Tamil Nadu economy, using to the maximum labour intensive and intermediate technology on the one hand and devising large scale special programmes, even if they be economically unviable, as the only means of increasing the incomes of those in the poverty sector. The poverty sector itself in Tamil Nadu needs further intensive investigation by the State Planning Commission in order to identify the precise groups and families which compose it, along with their location in different areas and districts. For this imperative of a selective attack on the worst forms of poverty in the State, a question that arises is whether even the 7-6 per cent consequential growth rate assumed in the perspective Plan Frame is high enough to ensure that there would be a non—inflationary State product surplus after allowing for the population increase and depreciation charges for distribution to the poverty sector. In this connection the Union Planning Commission's approach paper suggests a 5.5 percent rate of growth. While this aggregative rate for the country as a whole is not inconsistent with a higher rate for Tamil Nadu and some other parts of the country, the worrisome problem is that after allowing for population increase and depreciation charges there would be little left for the attack against poverty.

Perspective Planning must be concerned with the status of the changing role of resource endowments and a study of secular trends in the economy. The Plan Frame is rather weak on this essentials of Perspective Planning. Too much of its questions and issues are concentrated on medium term programmes. Power, water, and population are areas where secular trends need to be intensively studied along with proposals for the institutional frames needed in order to avoid drifting into the situation of the very serious power deficit and water shortage that we face to-day in this State and all over the country.

The Plan Frame assumes an aggregated capital output ratio of 2.3 : 1. This aggregate must be broken down into its sectoral constituents, and every attempt made to lower the ratio. In this connection a recent study arranged by the commission in Dharmapuri District and checked against data from other States indicates a very high capital output ratio for minor irrigation works being 4 to 4.5: 1. If this is true, the minor irrigation work programme may have to be included in the unviable sector of the pers-

pective plan. But before such a conclusion is reached there is need for further checking of this data. The positive conclusion of the Dharmapuri study is the need to expand rapidly the technological inputs in dry farming which has the low capital output ratio of 1 : 1. The perspective plan should provide for a rapid and extensive coverage of the new technology in all dry farming areas in the State as a major means of combating poverty and raising the incomes of the dry farmer.

The methodology of the perspective planning proposed by the plan frame needs to be clarified and strengthened at several points. The start made on district planning is sound but it is only a start. It needs to be based on the decisions of the elected local bodies, it should be followed by a similar decentralisation of plan execution, it needs to be adequately staffed so that both the constraints faced by local projects and the monitoring of the execution of plan projects are undertaken at a district level. The State Planning Commission needs to give further thought to the integration of sectoral programmes in the State Plan as well as the as yet unresolved problem of coordinating district planning with regional planning in the State. Specific programmes and projects must be devised for helping three groups in the State, Universities and Colleges, the city corporations and Municipalities and Panchayat Union Councils, and the private sector with its expertise and long term planning to contribute to the perspective planning underway.

The plan frame merely indicates the perspective plan outlay that would be needed but says little on the constraints and mobilization of resources problems which are crucial. The magnitude of the outlays proposed are not too ambitious. The State Planning Commission needs to face very clearly and frankly the onerous constraint to savings and capital formation in the State and the country and devise or propose adequate measures for countering them. These include not only our low level equilibrium trap, our anti thrift traditions, our nepotism, corruption, black money and the increasing disorder which makes for dissavings and disinvestment. There are larger problems of inflation and deficit financing which will have to be dealt with at the All India level. The moblization of additional resources in the State calls for detailed suggestions from the commission. In this connection the recent set back in the system of agricultural income tax in the State and the forced lowering of power rates to uneconomic levels should not deter the commission from a major programme for mobilising resources from the growing rural surplus. One positive trend is the readiness of villages and towns to raise local resources for local project.

This start of public debate and participation in the formulation of the perspective plan of the State needs to be continued and strengthened in the months ahead.

Drought: August and September confirmed the effects of uneven rainfall in the State and the prevalence of drought conditions in some areas. The precise areas in Dharmapuri and North Arcot referred to in the last issue have been identified. In North Arcot they cover the six taluks of Arkonam, Walajah, Arcot, Vaniyambadi, Gudiyatam and Tirupathur. In addition drought symptoms have been identified in some pockets in every district. For these areas, the first need is the provision of drinking water and a sum of Rs. 1.25 crores has been released and a request for Rs. 6 crores as drought relief made to the Centre. The relief measures in the State include sinking and deepening of drinking water wells, tube wells, community wells, minor irrigation works, new ponds and village roads. The Union

Government has under its Rs. 20 crores rural water supply scheme, approved the scheme for 336 villages in the State. Another emergency measure applies to the Samba crop in four lakh acres out of the seven lakh acres sown in the Thanjavur district. Due to inadequate rainfall, the water storage position in Mettur was poor and the daily drawals had to be cut down and eliminated for some areas. In response to Tamil Nadu's request to Mysore for 6 tmc. feet of water from the Krishnarayasagar reservoir to save the samba crop in Thanjavur, Mysore agreed to make available 3.5 tmc ft. of water on a reimbursement basis. Other measures taken to relieve the drought hit areas in the State included postponement till the end of the year of the collection of areas of land revenue, loans and agriculture income tax. These emergency actions must be supplemented by acting on the recommendation of the State Planning Commission referred to in the last issue of the Bulletin for a water management cell under the Water Supply and Drainage Board and the proposal for a National Water Resources Council described in Vol. II No. 8 of the Bulletin in order to develop the State's water resources for all three purposes—drinking, irrigation and industrial use—in an effective manner, in full knowledge that the State and Country will face such periodical shortfalls in its rainfall. It is time that we moved from emergency ad hoc actions in an area which is so vital for the existence of the people. The Cauvery team's work in the State in September which included an aerial survey of the Cauvery basin from the Mettur dam to the Coleroon river mouth and a study of the irrigation system in Thanjavur and Tiruchirapalli districts comes at an opportune moment in regard to the State's irrigation needs. Whether the Ganga-Cauvery grid, which in any case, will not become a reality till the next decade if all problems relating to it are resolved, will add to the irrigation resources of the State is still under discussion among hydrologists and engineers. The two results of the drought situation relate to power and prices in the State. From October 1, the government has imposed a 25 per cent cut in power supply—except for agriculture, defence establishments and essential services and a smaller cut for industry and news-papers. The background for this rather drastic action, which will affect industry including small industry, and agriculture which though exempted must conform to grouped supply conditions is revealing. The State's daily power consumption is 22,000 million units, to which our thermal sources (Neyveli and Ennore) contribute under 300 MW, the rest being from our Hydel stations. September's hydel storage was 600 million units compared to 1,540 million units at that time last year. This cut is expected to last till the summer of 1973 because while the reservoirs in Madurai-Tirunelveli are benefiting from the current North East monsoon, our major storages in the Nilgiris and the power supply from Kerala will have to wait till next year's South West Monsoon. Also the integrated Southern power grid described in the last issue of the Bulletin is not able to carry out one of its main functions of helping in the power shortage such as this State faces because all States have been hit by the drought and Mysore and Kerala are no longer power surplus States. In these circumstances the thermal plants at Ennore with its 300 MW capacity, now working at 1/6th capacity, must be brought into full working as also the Neyveli plant, which with its 600 MW capacity has actually decided to reduce its output from 300 MW to 200 MW during the monsoon months. It is also hoped that the Rs. 4 crore loan of the Tamil Nadu Electricity Board, so fully and quickly subscribed, will enable the Board to put into effect the projects analysed in Vol. II No. 8 in order to place the State on a footing to meet monsoon delays or failures. The proposal for the Union Government to take over the larger private electricity generating companies and for the State Governments to take over the private distributing companies must be re-examined in light of the recurrent power cuts that this State and the Country face.

The major criteria should be efficient generation and effective and cheap distribution—in both areas of which the public undertakings record must be further improved when there is such take over. The other effect of the drought is on prices. With the adverse effect of the drought on the paddy Karsamba crop, rice and paddy prices have tended to rise, particularly the finer varieties, as have black gram and chillies. Fair price shops are being used to distribute rice, sugar, maida, ravai, suji and other wheat products, to the extent of 10 tonnes of toor dhal, 3 tonnes of suji and 2.5 tonnes of maida as at the end of September. The monthly sugar quota of the State has been raised from 9,400 tonnes to 10,000 tonnes and is distributed to 90 lakh card holders throughout the State—that is to say an average of one kilo per family. The basis exists for opening and operating fair price shope in all areas of the State—particularly the rural because that is where the rise in price has its most serious impact. The recent income survey conducted by the Institute of Techno-economic Studies shows that the per capita as well as per family rural income is one third that of Madras city and 50 per cent less than those of other urban areas in the State. The per capita and per family rural incomes are Rs. 453 and Rs. 2,124 and those of Madras city are Re. 1,229 and Rs, 7,301 respectively. The rural areas spend 63.5 per cent on food, while Madras city spends only 46.9 per cent. Under these conditions the net work of fair price shops covering the whole State planned by Civil Supplies Corporation should now be put into effect and its full operation effected from January when the Corporation will have accumulated after the harvest the stocks of essential food articles, edible oil and cloth for the 90 lakh card holders. This is the advance action that can be taken now to implement the State Planning Commission's proposal for mass distribution of wage goods for the urban and rural poor during the Perspective Plan period.

Housing and Housing Sites : As described in the last issue of the Bulletin, action under the Kudiyiruppu Act got under way in September, with the distribution of ownership titles in Thanjavur district to over 1 lakh Harijan families and 50,000 other poor families without any payment to Government. This Act now needs to be extended to other districts. The issue of urban property ceilings is still under discussion by goverment expert committees, political parties and State legislatures. In this State an expert group has made a study and recommendations on urban ceilings in Tamil Nadu. Urban property ceilings have to be established following the agricultural land ceiling that are now being executed. Like the latter it is essential that some All India standards and guidelines be agreed at the National Development Council which can then be adapted to the particular conditions within each State. That is also the position of the government in this State. The State's housing programme registers some pluses and minuses. On the plus side the housing programme is spreading to urban centres outside Madras. Madurai is engaged in a Rs. 9 lakh tenements construction in its slum clearance programme and has pioneered the building of university staff quarters. Under a new housing loans programme the Central Cooperative House Mortgage Society will from now scrutinise the requests for housing loans made by the affiliated house building societies and disburse the loans to applicants through the society concerned. This will simplify, speed and make more efficient the programme. It will also increase the resources available for house building. The only snag is that the interest rate will be $2\frac{1}{4}$ per cent higher ($9\frac{3}{4}$ per cent) as the loan funds will come from LIC. But the real minus of the State building programme is the yawning gap between resources and plans. Against the State's annual plan for Rs. 10 crores (see last two issues of the Bulletin) and the five year plan for Rs. 80 crores, the annual Union grant is only Rs. 1.5 crores which with the matching sum from the State means that only

one third of the annual plan will be executed. This will distort the priorities as between rural and urban housing and introduce further skewness in distribution. The Fifth Plan must give priority to housing as a generator of employment and as a major welfare item–as pointed out in Vol. II No. 7 of the Bulletin. Further to sewage treatment in the city referred to in the last issue, the conclusions of the Aarahus (Denmark) training programme on coastal water pollution control are being applied to Zone 4 (Saidapet and West Mambalam) in the city. Here the sewage water and chemical effluants are being treated so that the Adyar and Cooum will lose their smell and promote marine life. The same programme on a larger scale will be applied in the Tuticorin harbour to safeguard and develop the ecology of marine life there against the developing industrial complex. These pilot efforts are of wider interest both to the State and the Country.

Industrial relations: Industrial relations in the State showed a marked improvement in September with the final settlement of the dispute holding up full resumption of work in the Simpson group of companies. So too the strikes in Neyveli, the cement units, and Buckingham and Carnatic have been called off. A disturbing feature of the industrial relations in the State and Country is the increasing extent to which labour as well as management are relying on government intervention to bring about a settlement of their disputes. It is true that the stakes in the Simpson dispute were very high. Simpson's annual turn over is Rs. 60 crores, several hundred small sector industries are dependent on it, producing Rs. 15 crores of components annually for Simpsons, defence supplies rely heavily on this group. Even so the issues are straight labour management issues which should be settled bilaterally. The amount of time that the Chief Minister and the Labour Minister are having to spend on reconciling labour and management representatives is not helpful either for the growth of trade union management relations complex or the other responsibilities that the government carries. This State and the other 3 Southern States suffered serious disruption–economic and social–from the 14 day loco staff Southern Railway strike. The staff put forward 8 demands and to enforce them went on strike. All passenger services had to be cancelled and food grains movements halted at the time of the drought (eight food grains for the drought affected areas of Kerala were held up in the Central Railway region and South Central Region). The Union Government declared the strike illegal under DIR rules and used the territorial army to move essential goods. The strike ended without a settlement except that the Railway Board is examining the demands now after the staff have returned to work. Here again there is need to maintain labour management relations in such a manner that the breaking point in essential services should be duly and effectively foreseen and disruption avoided. The loss to the State has not yet been estimated but it runs into crores–with little gain to any party in compensation. The Railway Board's joint forum, the Corporate Enterprise Group, which is being launched with members from the Board and the two labour federations to evaluate the functioning of the railways with a view to improving its viability and efficiency, appraise its investment programmes both economic and social, improve its organisational effectiveness should help in improving the industrial relations climate. Though the form will not deal with staff matters, it will, it is hoped, fill in the gaps in the existing negotiating and consultative machinery. Such a programme might also be developed in other large undertakings like Simpsons.

Bank Financing of Rural Development: Rural areas are being rapidly covered by banks. Only two districts in the Country remain to be so covered. Since nationalisation,

5,375 offices have been opened, over 60 per cent being in unbanked rural areas and 5,000 more offices are to be opened by 1974, according to the Annual report of the Reserve Bank of India. The future trend to concentrate on urban and semi-urban areas needs however, to be corrected. The purpose of this increase in branch offices is to (a) mobilise rural resources: (b) make effective the slow moving lead bank scheme and its development studies: and (c) finance rural development—the small farmer, the small industrialist, the technician etc. From this point of view the rural development programmes promoted by the banks in the State as referred to in the last two issues of the Bulletin are still in the pilot, fragmentary stage. There is need now for a massive effort by banks in the State to promote rural development. And for this on their side the banks need to be adequately staffed by agricultural and small industry specialists in their key rural branches and a working agreement reached with the government on the role of the commercial banks and the cooperative institutions, particularly the land mortgage banks, in such development. There can and should be no exclusivity, rivalry or wasteful competition on either side. The responsibility for developing such an agreed policy rests with the government. Tamil Nadu studies such as the Economics of Dry Farming by the Madras Institute of Development Studies and the Department of Agriculture's survey summarised in Vol. I No. 7 of the Bulletin shows that the small farmer is as effective as the large farmer if he has access to the new inputs: that he is more efficient than the large farmer in the use of his land, and less efficient in use of labour, livestock and machinery. Given credit for the technological inputs and the common use of agro-service centres, his net return per acre is higher than that of the large land holder. The most recent survey for 1970 shows that all sources of rural credit are heavily concentrated on the medium and large land holder—the worst offenders being the cooperative institutions. The small farmer owning 2.5 acres and less, according to the Department survey referred to earlier received Rs. 6,720 out of a total Rs. 1.59 lakh credit from the cooperatives (about 4.23 per cent), Rs. 8,250 out of a total credit of Rs. 69,710 from the government (about 11.83 per cent) and Rs. 7,500 out of Rs. 40,900 from commercial banks (about 18.34 per cent). To date the commercial banks' start in financing small farmers development though unimpressive in absolute terms, is important in relative, total and percentage, terms. The government is trying to improve the performance of the cooperatives by increasing the number of circles (from 37 to 52) and increasing the number of district project officers for improved project formulation and execution. This is necessary and should lead to more service to the small farmer, if the power structure at the rural level can enable the small farmer to have an effective voice in the society. Meanwhile for servicing him in the 25,000 villages in the State, the State Bank and the commercial banks should be freely permitted to engage in farm financing as they do in the neighbouring States of Kerala and Mysore. The land development banks will never have the massive resources of the nationalised banks and the latter should be allowed finance land development, minor irrigation, cultivation of food and cash crops, marketing etc. on as large scale as possible with the help of the rural development centres they are organising.

*   *   *   *   *   *

National:

Fifth Plan and Last Annual Fourth Plan: Programming for the last year of the Fourth Plan, 1973-74, is now getting underway. The Union Planning Commission's guidelines

for this exercise which are in part sound should be addressed to the States and not primarily to the Union Ministers. The most useful directive is for all agencies—State and Union—to translate into the year's action, the mid term appraisal which was for many reasons stillborn (See Vol. II Nos. 2 and 3 of the Bulletin). The annual plan must also reflect the strengthened machinery and additional programme for the intensive rabi production that is to be launched this year, the better utilisation of capacity of industrial units, meeting the spillover commitments and completion of works started this year and speedy execution of the various crash schemes. What is vague and non-executable in the directives is the so called advance action for the Fifth Plan ideas of employment generation and the minimum needs programme. At the moment these are still in the objectives formulation stage and it is important that no thoughtless advance action is taken until these objectives are turned into programmes and later into projects by the States—and that certainly will not be done until the 1973-74 plan is well advanced in execution. An attempt was made to formulate advance action at the recent meeting of the Central Advisory Board of Education which failed because the programme must first be formulated before any action can be taken. Both for the Annual Plan and preparation of the Fifth Plan, the starting point should be a tight review of the performance in each State as at the end of the Fourth Plan. The kind of aggregative macro-assessment done at the Union level can only be a pointer. It cannot establish the constraints to Fifth Plan programming which must be on a State and district basis. The problem here is that the States do not have the time and the free manpower to undertake this rigorous analysis and so we have to be content with overall assessment of the Union Ministries. This may be a major reason why there continues to be a large gap between our targets and achievements in every Plan period. For the Fifth Plan we have already begun establishing targets before identifying our constraints and so cannot test our targets against the constraints. The overall target for the Fifth Plan is an outlay of Rs. 51,000 crores, with public sector Rs. 35,000 crores and the private Rs. 26,000 crores on the basis of a 5.5 per cent overall growth rate (the U.N. Second Development decade target is 6 per cent but our own performance in the sixties was 3 per cent), with agriculture, industry and exports growing at 4.5, 8 and 7 per cent respectively. The resource base and targets which are ambitious and face an external resources gap of Rs. 4,000 crores (due to slow growing exports and increasing imports, debt servicing and the objective of self reliance) which is the least worrisome. With the nationalisation of the capital market,—banks, insurance, provident fund etc.—and the good fiscal system, the additional Rs. 6,000 crores in sources can be mobilised. The problem is the targeted growth rates and the physical targets being established without the kind of rigorous home work that should precede them and for which the State must be equipped. The Financial Express has recently published a revealing table of targets and achievements from the Second Plan to the Fifth Plan for which of course there are no realisation column.

Item	Unit	II Plan target 1960-61	III Plan target 1965-66	Abortive IV Plan target 1970-71	4th Plan target 1973-74	Latest estimate of achievement 1973-74	Shortfalls in terms of years	Proposed V Plan target 1973-79
1. Foodgrain	... Mn tonnes	75	100	120	129	110	5	145
2. Oilseeds	... Mn tonnes	7.0	9.8	10.7	10.5	9.8	8	12.5
3. Sugarcane (gur)	... Mn tonnes	7.1	10	13.5	15.0	13.7	3	17.0
4. Cotton	... Mn bales	5.5	7.0	8.6	8.0	6.5	9	8.0
5. Jute	... Mn bales	5.0	6.2	9.0	7.4	6.0	9	7.0
6. Power installed Capacity	... Mn Kw	6.9	12.7	20	23	19.5	4	35
7. Steel (finished)	... Mn tonnes	4.3	6.8	8.8	8.1	5.8	10	10.0
8. Coal	... Mn tonnes	60	98.5	106	93 5	80	10	140.0
9. Iron Ore	... Mn tonnes	12 5	30	54	51.4	42	5	75
10. Aluminium	... 000 tonnes	25	80	330	220	210	3	400
11. Copper	... 000 tonnes	—	20	37.5	31	15	15	50
12. Zinc	... 000 tonnes	—	18	70	70	38	5	70
13. Nitrogenous fertliser	... Mn tonnes	0.29	0.8	2	2.5	1.8	5	4.0
14. Phosphate fertilisers	... Mn tonnes	1.2	0.4	1	0.9	0.5	7	1.2
15. Oil refining	... Mn tonnes	4.3	10	20	26	21	2	35
16. Crude Production	... Mn tonnes	3.9	6	9.5	8.5	7.5	5	7
17. Sulphuric acid	... 000 tonnes	470	1,500	2,400	2,500	1,700	7	3,500
18. Cement	... Mn tonnes	13	13.2	20	18	18.5	4	28
19. Caustic Soda	...	135	340	500	500	440	3	900
20. Soda ash	...	230	450	600	550	570	3	900
21. Ball & Roller bearing	... Mn number	0.1	15	30	20	21	5	40
22. Commercial vehicles	... 000 number	40	60	80	85	50	8	100
23. Paper	... 000 tonnes	350	700	900	850	850	4	1,300
24. Tyre (automobile)	... Mn number	1.42	3.85	6	6	6	3	11
25. Railway freight	... Mn number	181	245	308	265	210	10	300
26. Primary education (6–14 years group)	... Percentage covered	63	76.4	92.2	85.3	84	6	100
27. 11–14 years group	... Percentage covered	22.5	28.6	47.4	41.3	40	5	50
28. Hospital beds	... 000 numbers	155	240	300	281	270	5	400

The moral from the table is not that targets should not be established or that they must not be in advance of realisable prospects. The basis of targets setting is not a uniform mechanical operation. In the case of power, for instance, where the target-achievement gap is not wide, the power ministry insists on a shortfall of 10–15 in realisation, that is planning must not be based on 100 per cent realisation. The demand forecasts on the other hand should be realistic—a six per cent increase was assumed whereas the increase in demand was nearer 16 per cent. Actually if the States can be helped to compute their power availability in a realistic way and the maintainance of power stations improved there need not be a gap. In this context, Mysore's proposal to generate 6,800 million units of energy in six hydro electric projects at a cost of Rs. 266 crores should be examined in light of the above considerations. There might be in the proposal some effective Fifth Plan programme to meet our overall power shortage. In the case of industries and minerals where the lag between target and achievement is spread over two or three plan periods, the Fifth Plan targets must take account of a number of factors. The broad division of Rs. 7,000 crores outlay for the public and Rs. 3,000 crores for the private is not important. The global target may or may not be right to the last lakh of rupees. What is important is that the target must ensure executing the left over and spill over commitments first as well as the completion of feasibility and engineering studies in this plan for iron and steel, petroleum and mineral based industries which have the largest slippages and whose gestation period is long. In these cases the Fifth Plan should not provide for expansion but only for the Sixth Plan targets. In the case of fertilisers, newsprint and paper and petro-chemicals which are medium term gestation industries, the Fifth Plan targets can be expanded if investment decisions and actions are taken now. The most serious question is with regard to the steel target of 19.5 million tonnes for which an investment of Rs. 3,000 crores is proposed. This investment must be made but the target is the Sixth Plan, not the Fifth Plan target. In the case of agriculture we are on somewhat firmer grounds. Our sixties performance was good. A recent private foundation study shows that agricultural incomes increased by nearly 150 per cent between 1960 and 1970, though the increase was unequally distributed between the large and small farmers and the States. 0.79 per cent of households who had an income of Rs. 20,000 and above had 10 per cent of the total agricultural incomes accounting to them. As between States, Punjab and Haryana recorded the highest increase in agricultural incomes (240 per cent) with Rajasthan and surprisingly Maharashtra the lowest (96 per cent). Tamil Nadu comes in between (140 per cent). The Indian Agricultural Research Institute Scheme for multiple cropping may not increase farm production three times and provide 17 million additional rural jobs as it claims. If the inputs including the short duration variety seeds are made available to the small farmer in time and in adequate amounts, if the State departments are staffed with adequate and qualified land use and soils specialists who can educate and guide the farmer as extension agencies, multiple cropping can become the farming pattern during the Fifth Plan and can increase output and employment sizably. In this State the two crops pattern is becoming common and we should move in States like this to 3 crops and in single crop farming States which are more than 50 per cent (37 million hectares out of 70 million are single crops areas) to 2 crops. A key element for the success of this programme is the sequence of the right crops which varies with the soil and weather conditions. The Thanjavur experiment of introducing 2 groups foundered for lack of irrigation. The Fifth Plan agricultural targets are not unrealistic if the multiple crop cafeteria programme, particularly for the wet areas and the new technology for the dry areas, are actually pursued. Meanwhile for the present 5,000 tonnes of

edible oil a large quantity of pulses are being imported to make up for current shortfalls in oilseeds and pulses output. A good start and test for this expanded programme will be how far the States will fulfil the higher food output targets that they have accepted for the coming winter and summer production. This emergency additional 14-16 million tonnes programme is composed of 8.75 million tonnes of wheat, 4.5 million tonnes of summer rice, 2 million tonnes gram and a million tonnes of cumbu and cholam. If this is realised, the loss of 15 million tonnes of kharif food output (due not only to the drought which ended in most States but to its intensity in Gujarat and Andhra Pradesh and the cyclone havoc to the rice areas in Orissa) will be made up. It will also relieve the sombre picture of the Fourth Plan agriculture growth being only 3.7 per cent against the target of 5-6 per cent, a shortfall that the Planning Commission attributes not to drought, floods etc. but to lacks in agricultural administration, research and extensions, inputs, credit, marketing and storage. It is these non-production elements which must now be strengthened in order to achieve the Fourth and Fifth Plan targets.

Growth and Prices : Our growth performance, outlined in the Resèrve Bank's annual report continues to be poor, depressing and serious, vis a vis the Fifth Plan targets referred to above. Last year's (1971-72) real national income grew by less than 4 per cent (the Bank's computation) and what is depressing is not this performance but the trend which for the past three years from 1969-70 has been on the decline from 5.3 to 4.7 and now to less than 4 per cent. This means that if we are to achieve the Fourth Plan target of 5.5 per cent, for this year and next we will have to average a 7 per cent growth for each year. All the distributional objectives of the current and Fifth Plans will be set at naught if this deceleration in production continues. Our first priority therefore is to produce more in both the primary and secondary sectors in order to augment the incomes of the poverty sector and generate employment. In the primary sector there was very good performance (7 per cent) in the first two years and this momentum should not be lost as it is in danger of doing. But it is the industrial sector which is disquieting. As analysed in Vol. II No. 8, the Reserve Bank report confirms the rapid decline in our industrial growth from 7.1 per cent in 1969, to 4.8 per cent in 1970 and 2.9 per cent in 1971—far from the 8–10 per cent Fourth Plan target. Industries registering reduced outputs have increased from 24 per cent of our industries (by weight) in 1968 to 38 per cent to 1971. In fact falling production and huge losses continue to characterise many of our major public sector undertakings. The annual report for 1970-71 of the Heavy Engineering Corporation registers a cumulative loss of Rs. 73.33 crores upto March 31, 1971 due to heavy interest, depreciation and overheads charges but above all due to poor management, bad planning and unsatisfactory industrial relations. The first effort in this sector is to produce upto capacity or at least to near 80 per cent of capacity. The liberalising of capacity expansion (doubling) in relation to the 54 critical industries, and the permission to expand production upto 25 per cent to all units reported in Vol. II No. 2 of the Bulletin, had led to some increase in production as will be noted later. But the slowness with which applications for expansion have been dealt with (of 219 applications from larger units 48 were decided mostly in the negative, of 369 others only 52 were decided till July of this year), the lack of foreign exchange to purchase the needed balancing equipment for the expansions and shortage of raw materials have largely nullified the scheme's intensions. Now 4 more items have been added to the list of 54—with what results remain to be seen. In the first six months of this year 224 industrial licenses have been issued—61 for new undertakings on which the States should act quickly. In the meanwhile there are some increases

in industrial production during the first four months of this year. Compared to the same four months of 1971, the four months in 1972 shows a rise of 7.3 per cent as a result of some improvement in organisation and management of some public undertakings and a pickup of the private sector, particularly textiles. On the whole this increase is mainly in consumer goods industries. The capital goods and infrastructure industries are still limping.

This improvement on the industrial front needs to be sustained and generalised over the economy in view of the continuing price escalation that the consumer and producer faces. The wholesale price for August shows a rise of 8.2 per cent over that of 12 months ago, while the comparative July rise was 6.8 per cent. There is little to add to the analysis of the causes and the remedial action set forth in the last issue of the Bulletin. Foodgrain prices, sugar, wheat and rice continued to mark the highest increases (averaging 14 per cent over the year with sugar shooting up by 27.5 per cent) and manufactured articles by 5 per cent. The causes are: falling production, (the Reserve Bank report wryly points out that a decline in production is quickly reflected in a rise in prices, while production increases does not benefit the consumer commensurately); a poor distribution system; increasing money supplies (in the first four months of this year money supply increased by Rs. 212 crores compared to Rs. 146 crores for that period last year, the rise in bank credit for the year was Rs. 6.4 crores compared to Rs. 5.5 crores for the previous year, with a falling credit–deposit ratio); and deficit financing (the combined Central and State deficit was Rs. 631 crores for 1971–72 compared to Rs. 431 crores for 1970–71; for the first four months of this year the net Bank credit advanced to government is Rs. 592 crores and a decrease in net credit to the commercial sector by Rs. 382 crores.) The remedial actions proposed in the last issue, namely, increased production, improved distribution, economy in government expenditures, and increased mobilisation of savings, are emphasised in the Bank report. The Central loans of September 15 of Rs. 215 crores have been over–subscribed at Rs. 236.71 crores. The government is planning to reduce money supplies, tighten credit flows and use FCI stocks for open market sales and reduce purchases. In addition the plan for mass distribution of essential goods must cease being delayed and the credit squeeze should not slow down production. Consumer societies are also opening up all over the Country but these will only help the urban middle classes. Even so their anti-price inflation action and the decision of the meetings of traders to contain price rises might be of some help.

Bonus and interim relief payments: One consequence of the inflationary situation is the rise in relief, dearness and bonus payments. The bonus payment to factory workers is a peculiar Indian invention which does not exist in other countries. After prolonged study, discussion and debate by government, employers and trade union organisations and work by an 8 man committee of 3 worker representatives from INTUC, AITUC and HMS, three employers one of whom was from the public sector, one independent and chaired by Dr. B. K. Madan, which produced a divided report, the goverment has decided that all industrial undertakings in both the public and private sector should pay a statutory minimum bonus of 8.33 per cent. Various variants were discussed with the worker representatives, including paying part of the bonus in bonds or national saving certificates, setting bonus at a lower rate for firms which are making losses, the governments' ordinance has come out in favour of the 8.33 per cent minimum bonus for all as from 1971-72. This payment of 13 months salary for 12 months work is really part of the social objective of

wealth transfers from the rich to the poor. The decision is not based on any economic criteria or cost of living calculus. It is a straight social justice measure. It will bear heavily on the public sector undertakings which are registering continuous losses; in the absence of increased production it will add to the inflationary spiral. As part of this social objective, the government is also revising the guidelines for the pay of managers in the private sector. It has been a maximum 5 per cent of the net profit for a single manager and 10 per cent for a group, with a minimum of Rs. 50,000 per annum for all managers in firms not making profits. It is now proposed to fix a maximum of Rs. 60,000 including all allowances. This may be inhibit innovating managements and needs further study. Similar limits on profits and dividend payment of industrial units are also under study. Another effect of the price rise is the decision of the government to pay its staff as interim relief Rs. 7 for those earning Rs. 85, Rs. 8 for those earning Rs. 250 and Rs. 18 for those earning Rs. 575 per month as from 1 August on the basis of the Union Pay Commission recommendation. This will cost the Central Government Rs. 33 crores for a full year.

National Production: The Agricultural front has already been referred to under the section of the Fifth and Annual Plans. The crucial issue is the extent to which the kharif savings can be saved and the winter and summer sowings expanded. Both depend on the careful and intensive use of fertilisers (soil application of fertilisers or foliar application or urea in optimum doses) and the availability of short duration variety seeds. On both we face serious bottlenecks. Fertilisers are in short supply, we do not have the time to import them to save the kharif crop and the main hope is that the farmers have saved their fertilisers during the drought and can now use them. On seeds again, particularly for jowar and bajra, there is no time for operating a procurement and distribution programme and reliance is placed on local supply. To what extent these two hopes are realised will be known at the end of the prolonged kharif season this year. On pulses, we face a really difficult situation. Even last year's harvest yielded 11.38 million tonnes against the Fourth Plan target of 15 million tonnes—which is the current demand. The decision to import a large quantity of pulses apart, three types of action should now be launched. The short duration pulses, about which so much has been reported in Vol. II No. 8 of the Bulletin, and in earlier issues, has made little operational progress, and should now be planted. In the cropping, whenever possible in the delayed kharif, sowings should be pursued. And where the kharif crop has completely died, pulses should be sown. There is little excuse for the steady decline in the per capita availability of pulses in a country where it is the second major staple for the vast poverty sector. Cotton, however, has performed well. In fact as hinted in the last issue of the Bulletin, the 1971-72 output may be a little more than 65 lakh bales. The Cotton Corporation has purchased over 5 lakh bales as a buffer stock operation and will make heavier purchases if the 1972-73 crop is also large, as it is expected to be again between 60-65 lakh bales, as a means of preventing a too steep fall in cotton prices, meeting Bangla Desh commitments (to which 30,000 bales have been sold) and as a means of both reducing cotton imports and exporting our short staple variety in order to pay for our imports from Sudan and UAR of long staple cotton. Jute's reduced supply referred to in the last three issues of the Bulletin even with the aid of imports from Bangla Desh, will mean a sharp reduction in both internal supplies and exports from the jute mills compared to the high point reached last year when there was an 18 per cent increase in production, 11 per cent growth in internal consumption and a 30 per cent increase in exports of gunnies. But this was due

to a fortuitous set of circumstances arising from the disruption of Bangla Desh last year. What is needed is a long term programme for the modernisation of the jute industry and the intensive development of jute production in West Bengal.

Improved steel performance is still in the early stages. IISCO's improved production for July reported in the last issue continued in August. TISCO's proposal to double its capacity also referred to in that issue has been approved by the government. A Japanese firm has been selected to make the project report at a cost of Rs. 40 lakhs in foreign exchange. The report findings will also decide the size of expansion which may be upto three times the present 2 million tonnes capacity. No decision, however, has been made on the other part of the Tata proposal, that this expansion should take place under the joint sector arrangement, with the management in the hands of TISCO–private management. Here the government is keeping all options open, while clarifying its own thinking on the joint sector concept (see last issue comments on the Tata memorandum). The major determinant in the decision should be increased production and full capacity utilisation, as in the joint sector all other safeguards of public interests are present. Bokaro is also noving forward slowly. On September 10 its first coke oven battery went into production, to be followed within a month by that of the first blast furnace. The plant dogged by delays, including the refractories mess in the Country, will not complete its first stage of producing 1.7 million tonnes of ingot steel till around the end rather than the beginning of 1973 as per schedule. Iron ore production is increasing fast. Its distribution and export face serious problems. Iron ore mining in the Bellary Hospet area is being intensively developed by the National Minerals Development Corporation (NMDC) which while continuing to license the existing small mine owners, is itself taking on further exploitation. Production is increasing this year by 30 per cent, at 4.5 million tonnes compared to 3.6 million tonnes last year. The Donnamalai mine alone will yield 1 million tonnes. The Madras port is being geared to handle this increased production and its export consequences. Even Cuddalore is being used for loading the ships. The stocks are however piling up at the Tamil Nadu ports and in fact the railway loco staff strike was welcomed by the port authorities in Madras as a means of clearing the iron ore stock piles. The Plans for improved ore handling detailed in Vol. II Nos. 3, 4, 6 and 10 of the Bulletin are now overdue. Another obstacle is the railway which does not have either a system or the wagons to cope with this increased production. The mobile pipe line planned by the South Eastern Railway for carrying Barajmada ore to Paradeep port has broken down. The railway has to move 2 million tonnes of ore and another 2 lakh tonnes to Calcutta port. This is not being done and so huge stock piles are building up at the mines–Dhanmandal, Nergundi etc. NMDC is losing with demurrage and other charges because of this distribution—railway and ports-muddle which must be cleared up. The production of petroleum production is increasing but not as fast as the demand. The Indian Oil Company (IOC) more than doubled its profits for last year at Rs. 34 crores compared to 1970-71, with a sale of 15.6 million tonnes and turn over of Rs. 860 crores (the 1970-71 figures being 11.6 million tonnes and Rs. 720 crores). Even so the import of refined petroleum products in the first seven months of 1972 was 1.81 million tonnes and for this year will be 3.87 million tonnes against a total domestic demand of 24 million tonnes. With ESSO's notice of termination of 70,000 tonnes of Naphtha supply, the existing gap between the dem and for Naphtha (1.9 million tonnes) and supply (1.4 million tonnes) will widen, in addition to a 0.9 million tonnes demand growth by 1974. The Country faces two choices—one is to give in to the demand of the foreign oil refineries for

a rise in price and so increase their throughput and the other is for the coast based and other indigenous refineries to increase their capacity quickly. Barauni's capacity will be increased from 2.2 million tonnes to 3.3 million tonnes in two years. By the end of the year, its equipment will be modified to use the 5,00,000 tonnes of Iraqui crude. When the 6 million tonnes Mathura refinery goes on steam six years from now, we will meet our demands fully. In the meanwhile full use of the Madras refinery capacity which has already increased its production by 3.60 lakh tonnes and the 1 million tonne expansion of the Cochin refinery's capacity can go some way in avoiding a serious shortfall. In 1973 and 1974 there may have to be some further imports because of the place of petroleum and its products production in the agricultural and industrial development of the Country as it is a major input in fertilisers, transport, pimpset, diesel engines etc.

Sugar Policy: The two further government decisions with regard to uniform sugar price for the Country and the system of excise duty rebates to fill out the Country's sugar policy analysed in the last issue of the Bulletin have now been made. From October 1, all over the Country fair price shops have been making sugar available at Rs. 2 per kilo until November 15. This benefits most States where consumers have been paying more than Rs. 2, leaves Tamil Nadu where it is, and involves a slight increase (7 paise) for areas like Delhi. The Food Corporation of India operates an equalisation fund to set off the pluses and minuses as between the States in regard to this uniform price. The price is to be revised as from 15 November when the levy sugar will have to be lifted from this year's production and the price reflect the new cane price (see last issue of the Bulletin), the recovery rate etc. From the end of the year, FCI will become the distributing agency, lifting the levy sugar quota from the factories and making them available to the fair price shops, replacing private whole-salers. The other decision offers a rebate in the excise duty of Rs. 30 per quintal for the dry months May-June and Rs. 20 per quintal for the period July-September, in order to induce mills to pay the higher price for cane and increase to the maximum their production. That is the main aim of the sugar policy,—to increase production from 31 lakh tonnes for the last year to 45 lakh tonnes for this year, at a reasonable price for the consumer and a remunerative price for the cane grower. With these two decisions, it is to be hoped that we are moving into a long term policy on sugar, in place of the ad hoc, changing policies or lack of policies that we have followed in the last 3 years,—with disastrous results. Such a policy should be planned and announced in advance—not a week before the sugar sale price is to go into effect, and not four days ahead of the October-November slack reason for mills production. The mills must now respond to this coherent policy and increase their production to the maximum unit. An all India policy will have differing regional impacts. The South in particular does not stand to gain much from the rebates, not only because of its late announcement but because the eligibility for rebates has been increased from 80 per cent to 115 per cent over the previous years production. Sugar production in the South has a good tradition, increasing from 8.05 lakh tonnes in 1970-71 to 8.63 lakh tonnes in 1971-72. There is now a guarantee that the FCI will purchase all sugar produced and it is to this challenge that the mills in the South and all over the Country must rise.

Exports: Our export performance as analysed in the last issue of the Bulletin, continues to be poor. The way the export-import figures are presented and intrepreted do not really affect the basic growth situation on the export front. The government's latest computation is that the first three years of the Fourth Plan registered a 5.8 per cent of

compound growth along with an elaborate defence of why exports to Bangla Desh figure in this computation. For the first four months of this year our exports declined by Rs. 60 crores. However the July exports of Rs. 141.37 crores were Rs. 15.14 crores less than that of July 1971 and our overall trade balance worsened by Rs. 7 crores. The export target for this year has been revised down at Rs. 1,760 crores, as explained in the last issue of the Bulletin, which even so is a 9.3 per cent rate of increase overall from last year. This is an uphill task. Our iron ore exports which are in trouble not only for the domestic transport bottleneck reasons discussed earlier, but because Japan, our largest customer (importing 17.2 million tonnes at Rs. 89 crores out of our total exports 20.8 million tonnes at Rs. 112 crores) is in no mood to agree to a price rise to compensate for the 8.5 per cent dollar devaluation. The result was that last year's larger iron export earnings were less than that of the previous year by Rs. 1 crore, with 0.3 million tonnes less of exports. Our iron ore exports to West Europe has also fallen by nearly 50 per cent (from 7.7 million tonnes in 1970-71 to 3.9 million tonnes in 1971-72). On the other hand the deadlock in Indo-UAR trade negotiations have been broken and an annual trade plan for Rs. 63 crores for this year established. India will be competing in global tenders in UAR and our capacity to earn free foreign exchange will depend on the international competitiveness of our firms. India's imports of Egyptian long staple cotton will also be increased. Small scale product exports to Kenya will be increased under an agreement to the value of Rs. 9 lakhs. The Sudan and Yugoslav railway wagon export orders amount to Rs. 50 crores. The most important element in the export picture is the proposed agreement with EEC as outlined in the last two issues of the Bulletin. This is still in the stage of policy declarations on the part of UK and the EEC countries. There is less than a year available for the detailed negotiations to be concluded and ratified by the 10 countries. In the meanwhile the UK market which imports Rs. 170 crores of our goods out of a total of Rs. 260 crores to all ECM countries plus UK, needs to be safeguarded and further developed. The real problems faced by our export trade are not only the trade barriers imposed by other countries on our exports. They are in built impediments in our economy. Our stagnant industrial production provides no base for expanding our exports—particularly the non-traditionals. Second with a highly protected market and a high cost production structure, even an increase in industrial production will not make for increased exports. Home sales are more profitable than exports and all our producers prefer to sell at the high prices at home than incur losses selling at international prices abroad. There is no inducement to raw materials producers to sell them as inputs for export industries at lower prices. Third the basic raw material for our non-traditional exports, steel for engineering and allied industries, is not available in adequate quantities. Fourth our exports are not related to the changing tastes, fashions and demands of the foreign markets. Against this sombre background, the policy and practical measures recently announced at the September Board of Trade meeting should be speedily turned into programmes and implemented. They include (a) lifting limits on capacity expansion and on installation of export oriented industries: (b) simplification of foreign collaboration procedures for such industries: (c) rationalising of criteria with regard to export obligation which is hampering industrial growth: (d) more foreign exchange to purchase machinery to modernise our textile mills which are still the major export element (against Rs. 180 crores needed for this modernisation, only Rs. 2.5 crores has been allotted: and (e) a system of rational distribution of scarce raw materials including steel together with more liberal imports. All these measures are known and have been long debated. Now

some action is needed. In this context, a hopeful element in the grim export picture is the programme of the Trade Development Authority (TDA) with regard to product development and product adaptation. This is something new to our producers who expect the foreign consumers to adapt to our design, rather than developing designs and products that meet their desires. TDA in collaboration with UNIDO and foreign importers is helping in the development of new designs and adaptation of products in five fields—the ready made garments and home furnishing, sports goods, leather goods, sports bicycles, and electronic pocket calculators. The novelty in this programme is that TDA brings the foreign buyer and the Indian producer together so that both parties gain new insights—the Indian producer on how to adapt his product for the foreign market and the foreign buyer on what wealth of products are available in India. This programme has to be developed against the current high cost production trends of the economy and it is those trends also which must be reversed.

Aid: With the U.S. Congress legislation on foreign aid completed, the U.S. contribution to IDA which had been held back last year is at long last assured. As a result, the World Bank's two soft loans negotiated with India but not confirmed, pending replenishment of IDA funds, are now assured. One loan, $ 75 million, is for industrial imports and the second, $ 83 million, for the purchase of 6 cargo ships for carrying crude to feed Haldia and Barauni refineries. With these two loans India becomes the largest IDA beneficiary for this year, receiving $419 millions which is over 41 per cent of IDA's total loans for 1972 of $999.7 million. Apart from the two loans, the others cover population planning projects in Mysore and Uttar Pradesh, farm products marketing in 50 towns in Bihar, public sector fertiliser units in Gorakhpur, agriculture in Mysore and Maharashtra, grain storage and handling, Pochampad irrigation and railways. Projects under study by the World Bank group includes $12 million for agricultural universities, $40 million for expanding the public sector Nangal fertiliser unit and $75 million for power transmission. While all non project aid from IDA committed upto last year has been fully used, the execution record on project loans is very poor. Out of $323.9 million (Rs. 243 crores) given in the last 3 years only $20 million (Rs. 15 crores) has been used by mid 1972. In the case of power projects, internationap bidding procedures have caused the delay. In the case of water projects, the prior geological and hydrological surveys had not been made and, what is inexcusable, the organisational and procedural arrangements—such as the ground water Directorates in the State—were not there to execute the projects. In this regard the Country's use of aid is both poor and wasteful. On the overall aid front, against the agreed target of $1.200 millions for the current year there is some delay in processing bilateral aid agreements with UK, Germany and Japan. Debt servicing for this year will be around Rs. 360 crores and the amount of debt relief for this year has yet to be finally agreed upon. By December these agreements should be concluded and the aid picture clarified. With her high debt servicing obligations, the Bank makes no hard loans to India. Only ICII has received one such loan for $60 million in 1972. With the developing and developed world's such high stakes in IDA, its resources should be placed on a more long term and reliable basis. Such a basis would be the SDRs.

* * * * * *

International

Bangla Desh: The Bangla Desh Planning Commission is completing a comprehensive survey of the railways, roads, bridges and ports of the Country which are being enlarged and modernised to respond to the agricultural and industrial goods movement and trade. The transport sector will be a major priority in its First Five Year Plan to be launched next year. The rehabilitation phase assisted by India's 764 trucks and UNROD's 680 plus a further 830 from the two sources has helped to overcome the immediate transport needs. The Country is still short of 2,000 trucks. Trade between India and Bangla Desh is expanding. In addition to 6,00,000 tonnes of crude supplied to the Chittagong refinery, a further 5,00,000 tonnes of crude are to be made available to it this year on a commercial basis. Also, 1,20,000 tonnes of petroleum products to meet its various needs are being sold in addition to the 1,00,000 tonnes given as a grant. In turn, India is importing Rs. 1.5 crores of furnace oil from Bangla Desh. India is also importing molasses from there, the first consignment of 1,200 tonnes having arrived at the end of September. With the growing unsold stocks of betel nuts at the Cochin and Mangalore centres, Bangla Desh's offer of buying 6,000 bags of betel nut is of considerable aid to Indian growers. The October review of the trade agreement between the two countries deal with a number of problems that have cropped up in the trade relations between the two countries. A major trade problem has been border smuggling, particularly fish and consumer goods which reached serious proportions and disrupted the price and fiscal policies of the two countries. A second issue was the transit arrangements which had not been finalised to link West Bengal with Tripura and Cachar via Bangla Desh. A third issue related to the payments and transfer of resources between the two countries. The rupee trade has largely been a non-starter mainly because of the high prices of Indian goods such as coal wanted by Bangla Desh. In reverse the price of raw jute wanted by India has been higher than in India. The trade in paper and newsprint from Bangla Desh, tobacco and cement from India have been functioning normally. The results of the trade review will be analysed in the next issue of the Bulletin.

International Monetary Reform: The September meetings of the Commonwealth Finance Ministers and the International Monetary Fund continued the discussion of the wide complex of international monetary reform, without any notable advance, around the five major issues that have been dealt with in the past 3 issues of the Bulletin, (a) Gold. The US wants gold removed from any deal in international liquidity constituents, where its pre-war position of being the reserve ($25 billions out of $27 billions) has now diminished to being around one third of the reserve ($39 billion out of $129 billion). France wishes that the official price of gold should be raised from $38 per ounce to something nearer $70 to $76 open market price, so that it can act as a reserve asset. The President of the Fund takes no official position but both he and the majority of countries would want that the official price should be made more realistic, its role gradually allowed to diminish and the gains from the revaluations equitably shared by all countries. Gold really has no place in today's growth oriented developing economy and its earlier disciplinary functions can be taken over by planning. (b) Parities. The problem of floating currencies of UK and allied countries was not debated in the Fund meeting but was inconclusively debated in the Commonwealth Finance Ministers conference which simply rubber stamped the seven general conclusions of the July meeting of the enlarged ECM finance ministers (see Vol. II No. 9). Apart from the UK returning

by the end of year to a stable (not fixed) exchange rate which has entry into ECM requires of her, the general move is in the direction of what is vaguely called fixed but adjustable parities. The precise issue on which agreement is needed is the extent of flexibility of exchange rates and on that no agreement has been reached—except in the ECM countries which have agreed on a 2 per cent margin. There is the warning of the IMF president that the December 1971 revaluations and the preceding floating exchanges have not only hurt the developing countries, but will bring their trade balances under even more pressure in 1972, because of the terms of trade effects of the Smithsonian currency alignments. In any agreement on flexible exchange rates, the price that developing countries are now paying for past flexibility where their import prices are rising faster than their export prices, should be fully allowed for. (c) Hot money. The problem of Euro-Dollars is essentially a question between the US and the other developed countries and it is necessary to ensure that in the final resolving of this issue, the trade and development interests of the poor countries are safeguarded. On this issue also no progress was made. (d) Convertibility of the dollar. If the position set forth above on the role of gold is valid, the convertibility of the dollar into gold becomes a secondary issue. The U.S. has offered convertibility at the IMF meeting as part of a package of an equitable trading system and world monetary reform. The US is in a box and its President was right in pointing out that having in the fifties helped its developed countries allies to regain their strength, the latter should now help the US to bring about an equitable trading system. The US, as he pointed out, has the smallest percentage of GNP in world trade of any developed country. Here the current attitude to the US is not helpful for the development of any part of the world. The developed countries resent the US in its weakened position still dominating the international monetary and economic scene and bring to bear a rather short sighted self interest view which is not in their long term interest. The developing countries note that the US has slipped to the lowest (16th) place among donor countries in aid and that it held up the last IDA replenishment for over a year and resent this fact. The September meetings did not bring a real understanding among these various groups, who must in the coming twelve months reach an understanding agreement which is in the interest of every country and of the system. (e) SDRs. On this there is agreement on the need for a further issue of SDRs, though there is no agreement on the amount. The group of 24 developing nations set up by UNCTAD III met at the Deputy Ministers and Ministers levels preceding the IMF meeting and recommended that the next issue, of SDRs should range between 2,000 million to 6,000 million over the next 2 years (SDR = 0.888671 gram of gold). On the other more crucial issue of SDRs also being a means of providing development assistance or the international monetary system "supplementing resources available for developing countries from national, international, official and private sources" as the IMF Executive Director's report states, four clear alternatives have been set forth in that report. (i) A certain proportion of SDRs could be allocated by IMF to development agencies who will use them in their development assistance programmes or (ii) SDRs could be allocated to the member countries with the rich countries transferring to the development agencies part of their quota or its equivalent in currencies; or (iii) SDRs could be allocated to countries not on the basis of the present IMF quota but with a weightage for the poor countries; or (iv) SDRs could be allocated to countries after revising the present quotas in favour of the developing countries. These are all viable alternatives to the essential of linking SDRs to development. Without such a link, the developing countries will suffer if there was a straight

further issue of SDRs on the existing quota basis. And to make any one of the alternatives effective, SDRs must be established as the major reserve asset of the international monetary system. The alternative which promotes the maximum development cooperation from all other branches should be given priority and the alternative which improves the quality (terms, tying vs untying etc.) of official development assistance should be chosen. These preconditions indicate a clear preference for the first alternative. Now it is time to move from consensus on the essentials for a world monetary system which will replace the Breton Woods agreement, on flexible exchange rates and on the increased role of SDRs to a detailed and workable plan. The IMF's committee of 20 of which 9 are from the developing countries has this task. It has been asked to produce a broad outline of the reformed system by the end of the year. The committee's first decision "to make rapid progress towards agreement on reform of the international monetary system" and the setting up of a permanent group of their deputies should result in an agreed outline on the complex issues by the next meeting of the Fund.

The World Economic Situation: The reports of the President of the IMF and the World Bank presented to their Annual Conferences represent high lights in development documentation. 1971 presents a bleak economic picture—slow growth of output (average rate of 3–4 per cent for the world and 4.1 per cent of GNP and 1.7 per cent of per capita for the developing countries), inflation, currency crisis, capital flight, increase in foreign exchange reserves in some countries and realignment of major currencies. The stagnation of industrial economies depressed growth of world trade to 5 per cent, which together with the prices of primary commodities falling steeply and with natural calamities they suffered, increased the deficit in current account for the second year of the developing countries. Together with the effects of the currency alignment there was an average effective depreciation of 4.5 per cent in the trade of the developing countries with the developed world. The Bank president points out that by the end of the century the annual per capita incomes of the developed world will be $8,000 and that of the developing world with its 2.25 billion people will be less than $200 at the present rates of growth and development. He forecasts that by the mid second development decade, official development assistance would not exceed 0.37 of GNP of the rich countries who had pledged 0.7 per cent by this year. The first renewed plea is for the rich countries to promote at least minimum equity in the distribution of wealth among nations. The Food and Agricultural Organisations annual report pointing to the tariff barriers of the developed countries reducing agricultural exports of the developing countries and suggesting that even a small reduction in the self sufficiency objective of the rich countries would help, proposes that a small 2 per cent reduction in that objective would boost food exports from the poor countries by Rs. 2,920 crores a year. Or again the UN Committee on disarmament points to the expenditure of Rs. 1,60,000 crores on military outlay most of it by the US, Soviet Union, France, UK, China and West Germany, which is 6-6.5 per cent of world GNP, greater than the combined income of Asia and Africa and 30 times the official aid to developing countries referred to earlier. The second conclusion is the same that we have adopted in India, namely for developing countries to undertake the institutional and economic reforms and programmes in land ownership and distribution, banking, employment generation through building, markets, roads, low cost houses, reforestation, expansion of irrigation and drainage facilities and low skilled labour intensive projects with a view to redistributing economic power and raising the income of the poorest 40 per cent of the population. In fact the general moral

drawn is that in the Fifth Plan approach—what is called the minimum needs programme. The Bank President sets this forth simply and boldly in stating that growth targets be expressed in terms of the human needs of nutrition, housing, health literacy and employment, "even if it be at the cost of some reduction in the pace of advance on certain narrow and highly privileged sectors whose benefits accrue to the few". Perhaps the most moving, if somewhat inexact and questionable in methodological terms, part of the argument is that equitable income distribution will not reduce entrepreneurial incentives, lower savings rates and lead to choice of obsolete technology. Correcting the highly skewed disparities in income without lowering the growth rate and reducing savings can be demonstrated by the performance within a country. The inter country comparison, that the same per capita growth was experienced in both the 8 countries where the wealthiest 5 per cent has 30 times the per capita income of the lowest 40 per cent and the countries where the difference was only 15 times, has the usual limitation of the countries concerned being at different stages and quality of development and not being comparable. The savings argument is clearer and is the experience in this country. Skewed income distribution does lead to a higher rate of gross savings which are channelled into highly profitable luxury goods production, while the lower rate of savings under more equitable income distribution conditions, if diverted to investment in wage goods can increase incomes in the poverty sector. Similarly on the choice of technology a good case is made for developing countries choosing the most efficient in terms of their factor endowment, which means not developing an economy where capital is subsidised at the cost of its large labour force, though undervaluing its foreign exchange, underpricing credit and misusing tax incentives. Another serious problem in the world economy is the mounting debt and servicing burden. The developing world's public debt stands at $75 billions (Rs. 54,750 crores) and its annual servicing is a huge 7 billion (Rs. 5,110 crores) which is about equal to the annual official assistance. Debt service payments have increased by 18 per cent in 1970 and 20 per cent in 1971, being twice the average increase in the sixties. This is an issue which needs attention by the rich countries in the context of the Second Decade Strategy and international monetary reform. The immediate corollary is for the strengthening of IDA, the softening of the terms of bilateral loans and a rapid increase in export earnings of the developing countries. In fact for countries like Japan, West Germany and continental Europe generally, the lowering of interest rates would both avoid, the embarrassment of their constantly increasing balance of payments and reserves as well as promote exports from the developing world. Equally it is in the interests of all countries and itself for the U.S. to develop a satisfactory non-inflationary rate of growth and for this U.S. interest rates need to be revised upward. With the normalisation of relations between Japan and the People's Republic of China, there will be a further widening of trade bstween the two countries.

Regional Monetary Arrangements: The proposed European Monetary Fund agreed at the Finance Ministers meeting in September of the enlarged Common Market countries is a coordinating organ of the Central banks of the member countries. It will develop into a Central Bank for the countries and ultimately issue a single currency. It starts with an asset of $1.4 billion which is the existing reserve used for short term aid to a member in balance of payment difficulties. The Fund is too small to act as a powerful influence in the coming international monetary reform discussions, but it can develop into a positive or negative force in reconciling or pitting the interests of its members against that of the U.S. and other countries. The arrangements for the Fund are to be

ratified at the summit meeting of the heads of the enlarged Community at the end of October—a meeting which faces the decision of the Norwegian referendum, where the people have pronounced against Norway becoming a member of the Community. The Asian Reserve Bank, referred to in the last issue of the Bulletin, is a similar but more modest proposal aimed at providing a cushion to the economies of the Asian member countries against the worst effects of global monetary instability. The Bank is still in the project discussion stage and its coming into operation will depend on the participation of hard currency Asian countries—Japan, Malaysia, Thailand, Indonesia, New Zealand and Australia—as well as the non-convertible currency countries—India, Sri Lanka, Laos and Nepal. The Bank should also help the countries to evolve a common position in the world monetary reform discussions.

*　　*　　*　　*　　*　　*

Agricultural Development :

Food Production, procurement and prices ; The 75 lakh tonnes paddy and food crops target for the current crop year 1972-73 referred to in Vol. II No. 9 of the Bulletin has been reaffirmed by the government with a slight shift to the rabi season for the 55 lakhs acres of the High Yielding Variety cultivation. The late rains in the State are changing Kuruvai prospects almost daily. Water levels in the Papanasam and Manimuthur reservoirs in the Tirunelveli district have risen to satisfactory levels by the end of September. Due to heavy rains in the catchment area of Cauvery in Mercara, heavy inflows have been registered in the Mettur reservoirs with little or no drawals because the fields are receiving water from the rains. While in early September the five lakh acres Kuruvai crop was in good condition and about 50 per cent of seven lakh acres crop transplanation completed, by the end of the month, the transplantation had been increased to 70 per cent. The transplantings also vary almost daily and according to regions. In Pattukkottai, Nagapattinam and Tiruthuraipoondi for instance the rainfall was inadequate and there is need both for the Mettur supply to be let to these areas and the spraying of ammonium to counter the earlier damage to the crops. It is not possible at this stage to forecast the performance of paddy and other crops for this season. The State as a whole is benefiting from the late rains at the tail end of September and early October. In some cases as in Tiruppur in the Coimbatore district flood conditions have developed with damage to people and crops. On the whole, there is reason for cautious optimism as to this season's food production in the State. The procurement price for paddy, rice and cereals have been established at a meeting of Chief Ministers at the end of September. Following the recommendation of the Agricultural Prices Commission, the procurement price in this State will be increased by Rs. 2 per quintal for medium and fine varieties, Re. 1 per quintal for coarse varieties and Rs. 4 per quintal for super fine varieties. This means, the price per quintal will be—coarse—Rs. 47, medium (which APC calls standard) Rs. 51, fine—Rs. 54, super fine—Rs. 56. HYV strains will continue the additional 1 Re. as at present. The Chief Ministers' conference decision also raises the price of bajra to Rs. 60, maize and jawar Rs. 58 and ragi Rs. 57 per quintal. This increase in procurement prices has been overdue and meets the producers' needs and consumers' interests. The total procurement target for the Country is to be 4 million tonnes of rise and 6 lakh tonnes of coarse grain. For Tamil Nadu the procurement target has been fixed at 2.5 lakh tonnes of rice. The Food Minister at the Chief Ministers' conference

expressed his doubts about the State meeting this target, (he felt that it would be nearer 1.5 lakh tonnes) but obtained a useful clarification that the entire target is not for the Centre but to ensure the success of the public distribution of rice. For this it has been decided that the food grains should be procured by FCI, cooperatives and the State Civil Supplies, Corporations and not through the levy on millers. Tamil Nadu should put this direct procurement operation into effect this season—with the 35 centres of FCI and the growing SFC centres. The next stage is to establish an all India and all State distribution system for rice, coarse grains, sugar, edible oils, pulses etc.

Improved yields of other crops: As pointed out earlier, cotton output for 1971-72 at 65.26 lakh bales was 45.1 per cent higher than the previous year. Tamil Nadu produced 3.89 lakh bales. Within this output out of the 1 lakh bales produced within the ICMF cotton development project areas, this State recorded the highest increase in yield. On the 10,000 acres of irrigated cotton in Coimbatore and Madurai districts under this project, the yield was 8.6 quintals of Kapas as against 4.7 quintals in the non-project areas. This programme has proved itself and should be extended to other areas during the current season. The introduction of such new high yielding short duration varieties is also urgently needed in the case of pulses. Similarly new crops like sunflower and soyabeans should be developed on the basis of research programmes. For the Fifth Plan annual production of 4 million tonnes of oil, plus seeds and consumption needs mean that around 13.5 million tonnes of oil seeds have to be grown annually. It is necessary to move away from our current heavy reliance on ground nut as the major oil seed. When the monsoon fails, as it has in fact this year, the ground nut crop is affected. The sowing of ground nut over 10,000 acres was delayed in the Tiruvanam and Pattukottai areas. Over 4,000 acres the whole crop nearly died. The sunflower on the other hand is a short duration (85 to 110 days), all season, rich in oil content, high in oil quality, and drought resistant crop. The State should push the production sunflower seeds during the current season, moving out of demonstration experiments to actual large scale production. With the commercial production of sugar beet seeds by the National Seeds Corporation, an important break through has been achieved. The most difficult phase is the commercial production of the seed suited to our climate and soils. Now a sugar beet mill should be established in the Coimbatore area of the State which can purchase the seeds and grow them in the Nilgiris-Wynad area. The various research results of the Departments' research centres and that of the Tamil Nadu Agricultural University should result in action which will lead to crop planning and development of varieties that can counter seasonal and weather fluctuations and large scale programmes in disease and pest control, soil classification etc. There is for instance need for a soil map of the State which classifies soil in accordance with their response to various kinds of fertilisers. What are the soils which respond to N and K and in what quantities? Above all the extension working of the Department should be related to the University and should be strengthened so that all this new knowledge is carried successfully to the farmer. From that point of view, the so called unemployed agricultural graduates is a contradiction because the extension services are totally inadequate to the growing tasks of the Department. The total food supply in the Country is likely to be considerably increased through the successful use of atomic radiation to keep insects off grains and the preservation of perishable food. The saving that can be effected in so treating potatoes, onions, fish, turnips, wheat, mangoes and other fruits is large and will soon be an important means of reducing our food shortage.

Coffee and Tea: Coffee output for last year and the estimates for this year analysed in the last two issues of the Bulletin raise the question of the future production in this important sector. The Coffee Board estimates show that the area, the total production and productivity have been constantly increasing in the sixties. Between 1960-61 and 1970-71 the area under plantation increased from 1,20,320 hectares to 1,36,453 hectares, divided equally between small growers of 10 hectares and less and medium and larger owners, the total production increased from 46,036 tonnes to 1.1 lakh tonnes and productivity from 430.31 Kg. per hectare to 520.13 Kg. per hectare. Under the International Coffee agreement our export quota is limited to 24,000 tonnes for last year and a request for 40,000 tonnes has been made for this year. In addition exports to non quota countries, notably the Soviet Union which last year purchased 20,000 tonnes, will it is hoped be continued. If as forecast in the last issue we start the next season with a stock of 1 lakh tonnes, we have a problem. On the demand side this problem can in part be met by increasing the domestic demand for coffee. The whole of North India is an untapped market and the Coffee Board should push sales there. The other programme is to diversify the production in the plantations. Here the International Coffee Organisation has computed that by next year, 1972-73, our disposable production would be 94,000 tonnes (a rather optimistic estimate) while our production potential will be 98,500 tonnes (which is near enough to the last issue's forecast of 1 lakh tonnes). The undisposable production is thus around 5,000 tonnes according to this estimate and around 20,000 tonnes, according to this Institute's estimate. In either case it is a manageable problem unlike those of the large Latin American coffee growers—Brazil, Colombia, and Central America. India's total coffee production is only 2 per cent of the world production. The International Coffee Organisation has since 1968 established a diversification fund by charging 60 U.S. cents for every bag of coffee exported in excess of one lakh bags. Under this fund, the organisation has launched a development and diversification programme to (a) improve the small plantation's productivity, (b) substitute other crops for coffee in marginal plantations and (c) intensify research to demonstrate the feasibility of alternative crops even on good coffee land. Under this development and diversification programme, the Coffee Board has chosen 4 areas of 2,000 hectares each in the Southern coffee State of Mysore, Kerala and Tamil Nadu for action. In Tamil Nadu the programme operates in the Palani hills where the small growers. problems of the lack of adequate inputs of fertilisers, seeds, fungicides and pesticides, need based timely credit and technical guidance are being met with a package programme to improve their coffee production productivity. In the marginal coffee areas, the growers are being offered free supply of seeds and technical advice to switch over to planting orange, lime, banana, pepper and pineapple. On the basis of this experiment, this programme should be gradually extended to all small plantations to improve their incomes and avoid glut conditions in coffee supply.

The development of tea plantations will be assisted by the recommendations of the Dutt working group on term finance for the tea industry which has been accepted by the Reserve Bank of India and turned into guidelines for the commercial banks and State financial institutions. The major conclusion of the Dutt group is that the finance needed by the tea industry is within the capacity of the financial institutions and that adequate and timely credit procedures must be devised for the development of the industry. The guidelines provide for loans being related to the purpose and repaying capacity of the plantation, and that full allowance must be made in the term of the loan for the

gestation period involved in the outlay and the results. Moratorium on repayment of principal upto five years and even on interest payments are provided to enable the investment to be used fully for developing the plantations. It is important that these provisions be applied in full measure to small and medium planters and not only to large plantation owners.

Fish and Dairy Farmlag: The State is the largest inland fish producer after West Bengal and the largest in marine fishing after Kerala—which is not as impressive as it sounds as this is one of the least developed industries in the Country. On inland fisheries, the Department is at last developing under the aegis of the State Planning Commission's Perspective Plan, a master plan for the Fifth Plan under which all inland water space will be stocked with quick growing fish species and inland nurseries will be started in each district. In the Nilgiris, Kodikanal and Annamalai Hills, trout culture is being intensively developed. In the State's marine fish development programme, the establishment by the Union Government of a regional office of the Marine Products Exports Development Authority in Madras is an important stage. The office will help in the development of commercial offshore and deep sea fishing vessels (see last issue of the Bulletin), registration of processing plants, storage premises, conveyances and maintenance of quality standards for export of marine products and provide financial aid for purchasing of fishing boats. In the last two years of the current Plan, the department plans to increase fish production from 3 lakh tonnes to 5 lakh tonnes—which is still a rather limited move forward against our large potential. In execution of the Plan reported in the last four issues of the Bulletin, the Tuticorin fishing harbour will be ready for use next year, the fish meal plant in Mandapam is working to full capacity producing 50 tonnes a day, the ice plant at Kanyakumari and freezing plant at Tuticorin are now ready for use. The government programme includes housing and improving the living conditions of fishermen. An important initiative is the loan of Rs. 78.70 lakhs to the Tirunelveli Fishermen Cooperative from the Agricultural Refinance Corporation with which 75 mechanised boats are being built for use by its members. The success of this project will spread cooperatives among the fishing community.

Dairy farming in the State has been provided a sound basis for irs restructuration in the results of the survey undertaken by the Institute of Techno-Economic Studies, regarding the economics of milk production in different breeds and stable sizes of milk cattle among different income groups of milk cattle owners in this State (Madras, Madurai and Coimbatore) and two areas in Kerala and Mysore along with recommendations as to the sizes, breed and distribution of machinery for setting up viable units for milk production. At present 70 per cent of our cows and 5 per cent of our buffaloes are in the non-descript group, 700 kgs. per lactation will make them viable. The survey recommends one frozen semen bank for this State and a central semen collecting station for every 10 artificial insemination centres. To counter the price spread of 60 per cent in cow's milk and 100 per cent in buffaloe's milk, it recommends that base price of milk be fixed at Rs. 1.30 per litre in urban and Rs. 1.09 in rural areas with the government and the Cooperative Milk Union being responsible for meeting 50 per cent of the public needs. It is further recommended that one cooperative milk seciety should be started for every 500 cows and buffaloes of breeding age and one milk supply union in each urban centre for every 100 rural feeder societies to ensure 25,000 kgs. of milk per day. The survey also recommends the reversal of the policy of complete evacuation of cattle from urban areas and proposes

the setting up of mobile health and breeding facilities in all urban areas. Liberal credit facilities for the small farmer to purchase both indigenous and foreign breeds are recommended on the basis of the cost return ratios that have been worked out. This Plan should now be incorporated in the animal husbandry section of the Perspective Plan, after further scrutiny of some of its assumptions by the State Planning Commission.

Tourism Planning: The four Southern States have taken an important step in the integrated planning of tourist facilities at a meeting of Ministers of Tourism of Kerala, Mysore, Andhra Pradesh and Tamil Nadu in September. One element of the Plan is the development of 1,946 sq. km. as the wild life sanctuary complex covering Mudumalai in Tamil Nadu, Bandipur in Mysore and Wynad in Kerala at a cost of Rs. 3.36 crores. Mudumalai will use Rs. 91 lakhs in this programme in developing its 320 sq. km. share of the sanctuary for elephants, deer and bison. A second element is the development of some 12 beach resorts in the four States for tourists. The Tamil Nadu resorts will be Mahabalipuram, Elliot's beach and Point Calimere. A third element in the Plan is inter-State package tours covering Kanyakumari,, Madurai, Tekkadi and Cochin with the infrastructure of hotels, inter State taxis etc. A fourth element is the decision to trat Onam in Kerala, Dasara in Mysore, Sankaranthi in Andhra Pradesh and Pongal in Tamil Nadu as national festivals will be occasions for organising inter-State tours, with railway concessions and other travel facilities. Similarly inter-State visits by journalists and writers and exhibitions are part of the Plan. This first initiative may well be the start of meeting a long felt need to put the rich and varied culture of the South on the tourist map of India and the world and of promoting closer understanding among the peoples of the four States. The Plan should be incorporated in the Five Y earPlans of the State and the Union Government.

* * * * * *

Industrial Development

Salem Steel: With the decision on the technology and process to be adopted in the Salem Steel Plant, work on the Plant is now underway. The preliminary preparatory work is nearing completion and the construction of civil works and railway facilities will be completed by the end of 1973. Power and Water supply arrangements have been agreed with the State Government. The Plant is being planned to meet the entire demand for stainless steel of the Country which the NCAER study established at 1,17,000 tonnes by 1980. In December 1971, when the study was first received, the government planned to establish stainless steel capacity in both the Durgapur and Salem plants to meet the 1,00,000 tonnes demand. However the economics of scale, efficiency of production and the need to ensure future expansion of capacity decided the government to build the Salem Plant for the entire capacity to produce stainless steel sheets, silicon steel sheets, high carbon and special sheets and straps. The ancillaries to Salem Steel should now be planned and developed. Durgapur's capacity for producing alloy steel beams is being expanded from the present 1,00,000 to 3,00,000 tonnes and the main responsibility for producing the high cost seamless tubes for which there is a demand of 1,00,000 tonnes from engineering industries such as boilers, ball bearings, automobiles as well as oil exploration. Durgapur which has easy access to the carbon bloom needed for this product mix should move forward in working up to capacity. If

all goes well and according to plan, the cold rolling mill in Salem should go into operation by 1976. The steel plants projects at Vishakapattanam and Vijayanagar should also be finalised early in light of the continuing steel shortages in the Country and the demands so clearly forecast for the Fifth Plan. The capacity of these two plants should be raised to 3 million tonnes each, both to meet the domestic steel demand and to use the latest technology which demands such scale production.

Concast: TIDCO's continuous casting plant at Arkonam commissioned on June 30 is from October working on a 24 hour commercial production schedule. This involves moving from 25 per cent to 60 per cent of capacity utilisation, which should move further to 75-80 per cent use in order that it may break even. The Plant faces problems of scrap supply, of which it needs 5,000 tonnes every month (see Vol. II Nos. 5 and 6 of the Bulletin). In addition to the sponge iron unit, TIDCO is developing a scrap processing unit in the area to ensure continuous supply of the needed raw material. This becomes urgent as the second furnace is installed. The need for planning the various inputs and ancillaries from the earliest stages is highlighted in the experience todate in this project.

Madras Oxygen: Another TIDCO supported project, Madras Oxygen, started in August 1969 at a cost of Rs. 45 lakhs went into production at the end of September. On the basis of the market survey established, its capacity is 10 lakhs cubic metres of oxygen and 2.5 lakhs cubic metres of acetylene per annum. Located in Perianaickenpalayam, its entire production of welding gases (480 oxygen and 120 acetyline cylinders per day), is being sold to the industries around Coimbatore, Salem, Mettur and Tiruchirapalli. Cylinder availability is the bottleneck as the cylinders have to be imported at present from Poland and Czechoslovakia. In view of the rapidly growing demand for welding gases in this State the company has applied for a license to double its capacity to 20 lakh cubic metres of Oxygen and 5 lakh cubic metres of acetylene. It has also submitted a proposal to TIDCO for joint sector plants—four oxygen, 15 acetylene and one for producing 25,000 gas cylinders annually—a proposal which should be processed and acted upon speedily.

Tamil Nadu and India Cements: TIDCO's Tamil Nadu cements registers marked improvement at 81 per cent utilisation against last year's 75 per cent which is still not as good as the private sector unit, India Cements, which increases its capacity use from 91 to 94 per cent at the Sankarnagar and 101 to 102 per cent at Sankaridrug. TIDCO's Alangulam cement plant, however, has ended the year 31 March, 1972 with a gross profit of Rs. 85.42 lakhs and after providing for interest and depreciation with a net profit of of Rs. 12.94 lakhs against the previous year's loss of Rs. 70.29 lakhs. India Cements records a net profit of Rs. 56.32 lakhs. There are two types of problems faced by the cement industry in the State. The first is the constant rise in costs of production—raw materials, transport and of course wages—and the continuing problem of wagon shortages to which references have been made in Vol. II Nos. 5 and 9 of the Bulletin. These costs can be stabilised through a price and raw materials distribution policy and the wagon movements and their turn around improved. The second long term problem is the very real danger of cement shortages arising in the State and Country during the Fifth Plan. The cement controller estimates that the cement demand for 1972 is 16.74 million tonnes, for 1973 18.87 million tonnes, and for 1974, 21.27 million tonnes. This means that the

capacity of the existing units must be expanded and new plants set up now, if a serious shortage in supply is to be averted. The decision to expand the TIDCO plant from 4 lakh tonnes to 7 lakh tonnes is a small contribution to this urgent problem.

Hindustan Teleprinters: Hindustan Teleprinters seems to be emerging out of its poor performance in terms of production and projects for 1971-72 and plans for the future. The production is still a low 500 teleprinter machines and the net profit about the same as for 1970-71 as Rs. 53.90 lakhs (see Vol. II No. 6). The main difference is that the unit is sure enough of its future performance to plan a long term expansion programme, the first phase of which will involve an expansion from 500 machines to 4,000 machines and in the second phase an expansion of 12,000 machines, both to be financed by internal resources. The first phase expansion will cost Rs. 120 lakhs to be completed before the end of the Fourth Plan and the second phase Rs. 277 lakhs during the Fifth Plan. The unit needs also to develop its export component which registered a steep fall to Rs. 7.17 lakhs compared to Rs. 27.7 lakhs for 1970-71 reported in Vol. II No. 6 of fhe Bulletin. The unit should also expand its production of tape transmitting attachments, peripherals for computers and calculators and electric typewriters for all of which the demand is far in excess of available supplies.

Petro-Chemical Complex, Madras Fertilisers and Refinery: In addition to SPIC (see Vol. I Nos. 4 and 8 and Vol. II No. 3 of the Bulletin), the State has under consideration a large naphtha cracket plant at the Manali complex. The project calls for a capital outlay of Rs. 200 crores, will involve foreign collaboration as a joint sector project, and will produce menthol, formal dehyde, dodecyl, benzenes and polystrene in all of which the State and the Country is in serious short supply. In addition, the complex will provide employment to 20,000 workers. In establishing the complex, safeguards must be introduced against the pollution problem which the existing Manali units have given rise to. The annual report of Madras Fertilisers records the completion of the plant and its starting commercial production in the first nine months, using 56 per cent of its ammonia capacity, 65 per cent of its urea capacity and 52 per cent of its NPK capacity. The problems faced by the plant include power failures (which will continue this year), the uncertainty in the supply of phosphoric acid, and the varying quality of the NPK product which has had to be reprocessed. On the marketing side, the recent Union Government decision not to use private trade channels (see last issue of the Bulletin) will have its effect on the distribution agreements of the company with Shaw Wallace and E.I.D. Parry which will have further distribution capacity. This first year report records a reduced loss of Rs. 1.07 crores (estimate was Rs. 3.45 crores) with strong prospects of breaking even next year. Madras Refinery can now achieve a monthly throughput of 2.4 lakh tonnes with the berthing of big tankers in the new oil jetty in the harbour (see last issue of the Bulletin). Crude is being pimped from the ships at the rate of 3,000 tonnes an hour, compared to previous 800 tonnes and with the rapid clearance of large tankers, Madras Refinery can save on heavy demurrage charges. The Union Government has not approved the Wax Plant proposal of the Refinery reported in Vol. II No. 2 of the Bulletin as there are more economical means of producing the needed wax in other plants.

Handlooms: Unsold handloom stocks at the end of September further rose to Rs. 11 crores as against Rs. 8 crores reported in the last issue of the Bulletin. The cooperatives alone have Rs. 8 crores stocks. The government has taken short term and

long term measures to meet this near crisis situation. First it has increased rebates for the Diwali season sales in order to keep prices down and stimulate demand. It has already spent Rs. 1.40 crores in rebate subsidy and has requested a special advance of Rs. 1.5 crores from the Union Government to clear the stocks with the cooperatives. The result has been successful in terms of prices. Only marginal price increases (10 per cent) are registered in Diwali sales for Conjeevaram and Arni silk sarees compared to the 60 to 100 per cent price rise in raw silk and cotton yarn. Also the competition between the cooperatives and private sector, more widespread and organised marketing by cooperatives, and consumer resistance has kept prices down. Second the proposal to channelise yarn from all cooperative spinning mills and TNTC mills to the weaver's cooperatives has been put into effect. The entire production of high count yarns of the 13 cooperative spinning mills is now diverted to the weavers in the cooperative sector at a reasonable price and there is to be no open market sales from this source. Even so all the yarn needs of the 2 lakh handlooms in the cooperative sector connot be met by this action. Their need for 2,500 bales of lower counts yarn are being fully met by the cooperative mills. But their demand for 1,500 bales of high count yarn can be met to the extent of only 25 per cent. The root cause for this is the high cost of imported cotton which is used for high counts yarn—a cost which has more than doubled. ICMF and the Union Government must act on this. Third the State Government has asked the Union Government to specify precisely what types of dhoties, sarees, towels, bedsheets etc. are reserved for the handlooms sector and for authority to confiscate cloth in these categories coming from outside the State in violation of the reservation rules. This would reduce our current stocks. Fourth exports of handlooms are being pushed. The exports of bed sheets and garments to the U.S. which had been suspended has now been restarted and about 2 million square yards of firm orders which had been accepted by our producers have been exported to the U.S. by the end of September. Fifth the government has taken action to regularise the 10,000 powerlooms now running in the State. This whole situation is in a mess in this State. The four lakh handloom weavers running the two lakh handlooms have opposed the government acting on the 12,000 powerlooms authorised by the Union Government for this State. The unfortunate double result has been first that States like Maharashtra have made rapid progress in production, which is seen in the flooding of powerloom cloth in Tamil Nadu from Maharashtra. The second result has been 10,000 unauthorised powerlooms are operating in this State. Now the government has decided to register and regularise these handlooms for which all powerloom owners are required to register within 15 days. This means that the Santhanam Committee recommendation accepted by the government of powerlooms being installed 50 per cent in the cooperative and 50 per cent in the private sector has to be given up—because of the short sighted opposition of handloom weavers. Now the ratio will be 10 per cent in cooperative handloom sector to 90 per cent in the private sector. The State Government has applied for an increase in the powerloom quota for this State and the entire amount should be allocated to the cooperative sector to overcome the latter's handicap. Finally the government is undertaking a much needed census through the supply of identity cards to every weaver in the private and cooperative sector, in the handloom and powerloom areas. The State will as a result have precise figures as to the number of looms, their nature, the quantity and quality of yarn needed, the number of workers in this sector, their credit. On this basis it will be possible to establish a long term comprehensive handloom plan. In the meanwhile the Planning Commission and the government will establish the Fifth Plan needs for this industry on an interim basis.

Other Small and Medium Industry Development: The Rs. 13 lakh modern rice mill at Thalayuthu, Tirunelveli district, lying unused two years after its erection is likely to become a white elephant. With the increased procurement price for paddy and with some minor technical recasting, the mill should go into full operation to meet the milling demands of the district. Hindustan Motors earth moving equipment factory at Tiruvallur should attract at least 200 ancillary units in its neighbourhood to supply the factory's 1,000 components, as it goes into full production. In our small industries development, ancillary units have been the weakest link in the chain. Even now the factory buys 700 components from various producers in the Country and the State. The government under its small industry promotion programme—SIDCO—has offered land, finance, power and water facilities to firms and entrepreneurs starting such ancillaries. Under the IDBI and IFC programme of aid to backward ditricts and on their recommendations, the State Government has invited the Engineering and Design Division of Fertilisers and Chemicals (TRAVANCORE) FACT to undertake an industrial and economic resources survey of Thanjavur and South Arcot districts. The two surveys will cost Rs. 3 lakhs and will by May, 1973 indicate the industries to be developed in the two districts. On the recommendations of the State Planning Commission, slmilar surveys are under way in Ramanathapuram and Dharmapuri—so that 4 out of 8 backward districts in the State are covered. The corporate sector in this State has been the largest beneficiary (15.5 per cent) of all States of IFC loans according to its annual report. This loan assistance to 50 projects in the State breaks down into Rs. 30.25 crores loan, Rs. 5.45 crores underwriting and Rs. 12.27 crores guarantees. The assistance involves aid projects in backward areas under which Enfields is setting up a motor cycle unit in Ramanathapuram with Rs. 50 lakh IFC aid for manufacture of 14,000 motor cycles per year.

Other Private sector reports: SIMCO's annual report for the year ending 31st March, 1972 records expanding production (additional Rs. 22 lakhs) and profits (additional Rs. 7 lakhs). The cut back in R & D expenditure because of the outgoings on income tax (for the first time) and increased excise tax is regrettable particularly when its pay off is so fully reported. The research break throughs include the power factor range meter, the two part tariff meter, the dye cast meter, the miniaturised version of the polythene variable capacitor etc. The problems faced by the company arose from the non-availability of an import component for 20,000 meters whose delivery was during the previous year and the fluctuating ways and means position of the Electricty Board, which led to reduced (40 per cent) utilisation of capacity during the second half of the year. In turn this led to lay off of part of the labour force and industrial unrest—strikes, violence and lock outs. With the power shortage in the State and the Fifth Plan's programme for rural electrification of pumpsets, the financial position of Electricity Boards should be assured to meet the established targets. Even within their fluctuating resource position, once a tender is accepted, the funds should be earmarked for it and should not be diverted to other uses. This same problem is referred to in the annual report of the Aluminium Industries which is still not out of the red. Its programme of diversification and operational economies have increased sales by Rs. 20 lakhs to Rs. 1.1 crores and doubled the projects before depreciation to Rs. 81 lakhs compared to the previous year. The cumulative loss is now reduced to Rs. 46.68 lakhs which will be wiped out this year. The export component of the unit has increased to Rs. 36 lakhs last year and in the first five months of this year has touched Rs. 26 lakhs. The company's set up has been reorganised rightly on a func-

tional basis (as against the traditional locational basis) and as a result of a market survey the demands for the products of both the machinery and switchgear division cover a 12 and 24 months period. The R & D division has helped in producing new designs for a reactor controlled spooler drive, aluminium strips for transformer winding and a 220 V universal motor and damper. The problems faced by the company include the effects of wagon shortage and the inability of the Electricity Boards, due to their own weak resource position, to take delivery of orders which they had placed. On both these problems, the current year should show improvement. Meanwhile the report suggests that for the Fifth Plan, the major industries as well as power intensive medium industries, through individual and consortia arrangements, should be assisted to set up their own thermal plants so that the present break in production due to reduced power supply does not occur. When the Union Government's Power Plan becomes operational, these power plants can be taken over by the State. This interim solution to our power shortage has much to commend it. The annual report of Seshasayee Paper and Boards records a 2,000 tonnes increase of paper and Boards to 34,588 tonnes, a Rs. 90 lakh increase in sales to Rs. 884 lakhs and a stable gross profit at Rs. 201.6 lakhs vis a vis that of the previous year. The company has established a rag pulp plant which provides 10 per cent of its increased pulp requirements, obtains from the State Government the bamboo supply from the State Forests and is negotiating for land with the government for growing quick growing hard and fast woods—as the raw materials for the company has to be increased to meet the steadily rising demand for paper in the Country. With the spread of education and literacy and increasing government controls and management with expanding paper work, the demand for paper is increasing at a rapid rate. The Union Government has warned the paper industry against increasing the price of paper, referring to the alternative of nationalisation and further controls. The problem for this company and the paper industry is a double one. The capital cost of the industry is rising rapidly. The Paper Development Council computes that cost of a 100 tonne paper plant is between Rs. 30-34 crores plus 5 crores for civil works (the company's Pallipalayam plant which produces 105 tonnes of paper and board per day has a capital of Rs. 10 crores). With this unit capital cost of Rs. 10,000 per tonne of paper and the interest and depreciation elements at Rs. 1,800 per tonne and the current ex-factory price of Rs. 2,100 per tonne, the entrepreneurial incentive is small in this industry, if the four year gestation period is also taken into account. The second problem is a related one and that is the urgent need to expand the capacity of existing plants and to start new plants now to meet the foreseeable rise in demand. And for this apart from the 2 public sector (Hindustan Paper Corporation) plants in the North East (Refer Vol. II No.9 of the Bulletin), new plants should now be licensed and established in the public, private or joint sector, which will have to take into account the capital cost and profit margin structure of the industry. The industry must be helped with soft loans and some tax rebates. In the meanwhile the company has applied for and obtained an increase in plant capacity from the current 35,000 tonnes to 50,000 tonnes of paper and pulp per annum, is awaiting the needed import licences and exploring fresh sources of raw materials. To help finance this expansion programme, it has ploughed back Rs. 160 lakhs out of its projects resources. This is one of the companies which plans well and far ahead in light of both developing trends and taking into account the policy implications of government strategy. Its recommendation for future development need to be examined by the government to stave off what the government itself has called the coming paper famine for the Country.

* * * * * *

Education, Science and Health ;

Education in the Fifth Plan : September registered continuing student strikes, violence and unrest in Annamalai University where student functions have disrupted the examinations and obliged early holidays, in Kota in Rajasthan where, demanding a new University, students set fire to buses and forced a hartal in the town, in Agartala where a student worker of the students federation was stabbed to death in front of the Bir Bikram College principal's office, in Calcutta where the deadlook in the University continues, in Bihar where non-governmental secondary teachers went on indefinite strike offering 'dharna' at the new and old secretariats, in Delhi where the Delhi University Teachers Union strike has suspended action on the reform bill passed by the Lok Sabha, in Bihar where all classes in the 220 colleges were suspended against the State wide strike to press for conversation of all affiliated colleges into constituent colleges and for reform in the administration and examinations, in Madras where the students in one secondary school walked out of the examinations and disrupted those held in other institutions and so on. Other problems reported during the month include the absence of any building for a recently started mofussil college in the State which can organise only one hour's instruction per day from 7-8 a.m. for its 350 PUC students. the loss of employment of some 25 tutors and demonstrators in the city who have no post graduate qualification because the managements fear that they will not receive the government grant for them, and the disappearance of terminal examinations in most government colleges without the internal assessment system, replacing it. Again State Planning Commission's Task Force on Education, Science and Technology in its final report computes that of the 32,000 B.As., B.Scs., B.Coms. graduates from the three Universities in the State this year, only 10,000 will find employment within 18 months, on the basis of the experience in 1970-71. A recently published survey by the Indian National Academy of Administration calls attention to the skewed distribution of even such employment as there are as between the middle classes and the poverty sector. The professional elite in our Country are shown in the survey to be drawn rather heavily from the middle class, with a tendency to self perpetuation. Whereas the middle class is about 60 per cent of the work force in the U.S. and occupies 76 per cent of the professional services, in India the middle class which is less than 16 per cent of the work force occupies 90 per cent of the services. The only ray of hope is among engineers and scientists who have a somewhat lower social origin and a broader social base, according to the survey, This means that for all our jobs, recruitment can be made from a broader social strata without the bogey of lowering of quality. A rather novel experiment has been the direct discussion between Mr. Arjun Singh, the young Minister of Education of Madhya Pradesh (who is referred to later in this section) and students in his State on eduational problem. The students said they had no faith in the present and political set up, characterising the education system as a fraud and the professors and administrators as political hacks. They want job-oriented education and expressed their suspicion that there would be no follow-up to the discussions that they had with the Minister. Later meeting with the vice-chancellors and professors, the Minister called on them to take students into their confidence and solve their problems as partners. The eduationists agreed with the students that there should be a complete overhaul of the education system, a changed curriculum and job-oriented education. They attributed wide spread student indiscipline to the growth of low quality and cheap institutions and asked for their eradication and a proper selection of professors and adequate emoluments for them.

It is against this rather crisis ridden background that the planning of education for the Fifth Plan is taking place at the State and Union levels. The State Plan was presented to Chairman (the Chief Minister) and the Minister of Education, made available to the Union Planning Commission, the Union Minister of Education and Social Welfare, and the educators, press and public in the State. A summary of the State Plan appeared in Vol. II No. 9 of the Bulletin. The Central Advisory Board of Education composed of the State Ministers of Education and selected educators chaired by the Union Minister is the highest policy making body in educational matters. It met in September to consider the outlines of the Education sector proposals for the Fifth Plan. It had before it a draft proposal for (a) an outlay of Rs. 3200 crores for education in the Fifth Plan, (b) an increase in pre-school education from the present 1 to 10 per cent in the age group 3-6, (c) total enrolment at the primary stage in the age group 6-11 with part time education for drop-outs, (d) doubling enrolment in the age group 11-14, (e) controlled expansion and vocationalisation of secondary schools, (f) adoption of uniform pattern for the whole Country of school and college education in a 10+2+3 staging, (g) tightening the process of establishing new colleges by making the States primarily responsible for new colleges, (h) strengthening of research, (i) a broad based national scholarship policy for merit and for scheduled castes and tribes, (j) a small adult literacy provision of Rs. 10 crores to make the age group 15-25 literate, (k) a youth programme, (l) a cultural programme and (m) a strengthened administration. The Board welcomed and adopted the major features of the programme : first its priority to primary education to which the Board added the programme of adult literacy extending the age group to 15-45; second the qualitative improvements which would make multiple entry possible at 6+, 11+, and 14+ and make primary education work based (the Tamil Nadu plan does not propose part time education for drop-outs for that would be carrying the existing school curricula to them, which they have rejected, but plans out-of-school programme which will build a curriculum around the work that the drop-outs are engaged in and which can later be fed back into the schools); the modernisation of science teaching and vocationalisation of secondary education ; in this connection a suggestion was made to start agriculture polytechnics to train agricultural teachers for rural vocations in the secondary schools ; a lower quantitative priority to higher education with vocationalisation and qualitative improvement ; and an emphasis by the Board on the retraining and in service training of teachers and action based educational research on which all the reforms suggested will depend. The Board recognised the weakness of the outline Plan. The main weakness is that in such overall aggregative planning at the Country level, the special features of each State, district and village which is the educational reality could not be taken into account. The financial outlay proposed which was four times that of Fourth Plan outlay, (Rs. 822 crores), was unrealistic and would have to be scaled down. If the Union Planning Commission after examining the State Plans and allowing for the claims of the other sectors, allocates Rs. 2,000 crores, education would be doing very well in the Fifth Plan. This State's proposal for the Fifth Plan including Science and Technology is a little less than double (Rs. 120 crores) of the Fourth Plan outlay. In this connection one suggestion made was that the educationally advanced States like Kerala, Tamil Nadu, Maharashtra, and Gujarat should plan for less than double their Fourth Plan, so that the backward States and the hill States can plan for three times their current outlays. A third problem was that the so called non-plan expenditure during the Fifth Plan, which would be more than double the proposed plan outlay at Rs. 800 crores, was not examined. Here is the real iceberg with an enormous built in waste which needs thorough review. A fourth

weakness was disagreement on what the draft proposal called the seed farm technology —that is the establishment of pace setting institutions through a model primary school in each block and a model secondary school in each district to act as demonstration and extension service centre and the raising of 10 per cent of the other schools to optimum levels. There was disagreement on this proposal as presented, from the point of view of creating elitist institutions, not relating their curriculum to the State curriculum, and in light of past failures. The idea is sound because school reform will have to be phased in this manner any way. There is however no need for Central assistance to this effort. Where assistance is needed is in regard to educational research which is weak or absent in most States. The Tamil Nadu Plan proposes a State Council of Educational Research and Training and asks that this be supported by Central aid. A fifth problem with the outline plan, the excellent documentation before the Board and the discussion generally was the complete ignoring of the demand side of the educational equation. This was serious at a time when the educated unemployed, defined as those with SSLC certificates and above seeking but not finding jobs, have passed the 23 lakhs mark, according to the Union Government's compilation of those registered in the live registers of employment exchanges. It also shows that school unemployment is increasing at a rate of 1 lakh workers between June and December 1971. The CSIR analyses of the 1971 Census which showed 3,85,000 B.As., B.Scs., and B.Coms. unemployed and 1,62,000 scientists, engineers and medical personnel unemployed (see Vol. II Nos. 8, 9 and 10 of the Bulletin). With the ignoring of this growing mass of unemployed and unemployables in the Country, there was an air of unrealism in the discussions and decisions concerning the planning of high school and higher education for the Fifth Plan. The most moving moment in the Board was when the young Minister of Madhya Pradesh called attention to the unreality of all these discussions and planning in light of the growing student unrest and the non-participation of students in this policy making organ. The board adopted his resolution calling attention to this serious matter and asking for a Committee to study and report back on action within four months. The Board also authorised the Chairman to appoint a standing committee to establish a revised outline plan in light of the State Plan and negotiate with the Union Planning Commission the needed and realistic educational outlay for the Fifth Plan with its help.

Technical Education ; The Union Planning Commission's task force proposals for technical education in the Fifth Plan conform to those of Tamil Nadu Plan—consolidation and qualitative improvement and no expansion. The Tamil Nadu Plan proposes the instrumentality of the Tamil Nadu Technological University to effect this development at a cost of Rs. 10 crores, while expanding technical high schools ten fold. The Union Plan calls for an outlay of Rs. 225 crores with stabilised admission of 25,000 university engineers and 50,000 diploma engineers. With the removal of the present cut back to admissions, the existing 120 engineering colleges (with an out-turn of 17,000 graduate engineers) and 300 polytechnics (with an out-turn of 22,000 diploma holders) will be sufficient. During the Fifth Plan, however, the manpower estimates must indicate that expansion should be planned for the future, if the 8-10 per cent industrial growth target is achieved. For the five Institutes of Technology, first degree enrolment will be stabilised and research scholars increased from the present 80 to 100. The Indian Institute of Science will be expanded in all its research areas. The two Institutes of Management at Calcutta and Ahmedabad will be slightly expanded (from 120 to 150) and faculty and Ph. D. programme development strengthened. Two more institutes are to be started

at Bangalore and Lucknow. The Tamil Nadu Plan has also provided for an Institute. The fifteen regional engineering colleges (this State has one at Tiruchirapalli) will be further developed and sandwich courses will be introduced in all technical education institutes in this and other States. The key note of the technical education plan is quality improvement.

Science : Agricultural University education faces a crisis in the Country for the Fifth Plan and a special problem in this State. The ICAR computes that around 16,000 agricultural graduates and post-graduates (9,000 graduates, 4,600 post-graduates, 700 engineering graduates) will be without employment at the end of the Fourth Plan. Hence as in the case of technical education, there should be no quantitative expansion, no new universities and no increase in admissions during the Fifth Plan. Under these conditions the proposals to start new agricultural universities in some States like Maharashtra in response to political pressures should be firmly resisted. Even the proposal of the Union Department of science and technology to set up a national institute of agricultural engineering seems wasteful as the existing agricultural engineering faculties can undertake the needed research to develop new argicultural machinery that our irrigated and dry farms require and improve such machinery and implements in relation to our soil conditions. If the National Committee on science and technology's plan for such design and improvement of agricultural machinery cannot be implemented in the existing agricultural universities, surely one of them may be chosen and provided with the manpower and research resources to undertake this urgent task rather than setting up a new institute at heavy cost. In agricultural education two actions are needed. The first is to create new avenues of employment and career opportunities for the graduates facing unemployment through incentives in farm employment and self employment, increasing the extension services of the States (as suggested earlier), in agro industries and service centres and in agricultural departments of the nationalised banks. Second from now on to and during the Fifth Plan, as the ICAR recommends, the existing agricultural universities should concentrate on quality, practical work experience and skills in relation to actual agricultural needs in the State. Further recommendations include a more adequate system of scholarships and manpower planning cells in the Universities to avoid future gluts. There is one area where there must be expansion and the starting of new institutions, and that is in agricultural vocational education. These middle level technicians are needed in agriculture and in the comprehensive high schools as teachers. The Tamil Nadu Plan envisages a rapid establishment of comprehensive high schools, 75 per cent of the vocational streams in these schools will be agriculture, forestry, fishery, animal husbandry and other rural vocations. Where are the teachers for these specialisations to come from? From this point of view, the ICAR proposal to start agricultural polytechnics is timely and one should be established in this State, with a teacher training wing to supply the teachers for the comprehensive high schools. In this case the separation of polytechnics and technical teacher training should not be repeated. In the qualitative improvement of the agricultural universities during the Fifth Plan, large and adequate financial resources should be provided for the new universities which have just been established with the help of U.S. aid which has terminated and the World Bank which will end during the Fifth Plan. This is where the Fifth Plan funds should go to make the new universities functional with a well developed campus.

In this regard the Tamil Nadu Agricultural University needs special attention. At the time it was established last year, this Bulletin called attention to the limitations

imposed on it and the duplication of research and extension which was being perpetuated by the parallel organisation in the Department of Agriculture (see Vol. I Nos. 2 and 8). The result of all this is that the University is being starved for funds for its functioning, let alone development. Instead of receiving an annual ICAR grant of Rs. 2 crores to which it is entitled, it now receives a mere Rs. 16 lakhs. The State Planning Commission's task force on education, Science and technology has proposed a comprehensive plan for the development and consideration of the University at a cost of Rs. 10 crores during the Perspective Plan period. The whole of this amount would be available as the ICAR grant provided the University constitution and functioning establishes it as the sole teaching, research and extension developing agent in the State, as is the case with the agricultural universities in other States. This means that the university charter must be changed to remove the provision for affiliating colleges in favour of constituent college. This would apply to the Veterinary College, Madras, the Avinasilingam College of Home Science, Coimbatore, Agriculture faculty, Annamalai University and the Forestry College, Coimbatore. There are particular problems of management and scope in each of these institutions but they could all be solved with adequate special and transitional arrangements. Second all the research stations and the research council of the Department of Agriculture should first be brought under the university's responsibility and gradually merged. The present duplication in research is both wasteful and scattering of the expertise available in both the university and the department. A start could be made in this rationalisation of research centres by transferring one centre in each district to the university. This consolidation of agicultural teaching and research is not only needed for the ICAR grant, it is needed for the adequate development of agriculture, forestry, fisheries and animal husbandry in the State.

The structural reform recommended by the Sarkar Committee for the Council of Scientific and Industrial Research (see Vol. 1 No. 9 of the Bulletin) is now in operation. The society of the Council which has been reconstituted with 15 members which include the Ministers of Finance, and Steel and Mines, will have the Prime Minister as President and the Minister of Science and Technology as Vice President. The governing body will be chaired by the Director General of CISR with four of the six project coordinators into which the 35 laboratories have been grouped. The governing body will review and guide the research in the laboratories. This rationalisation of the Council should enhance its R & D results vis a vis the Country's development. The Indian Institute of Tropical Meteorology on the basis of 12 years experiments in artificial rain making in the Agra, Delhi and Jaipur region, is now engaged in cloud seeding in Tamil Nadu and Maharashtra. The experience to date shows that during the monsoons cloud seeding increases rainfall in a small amount. Cloud conditions and rain processes differ from Poona and ground based generators in Madras are extending the experiment to this region during the current monsoons. Even a small increase in rainfall can help in the countering of the effects of the drought and the power cut. Development in space satellite research in the Country has led to Bangalore, with the help of the Hindustan Aeronautics located there, being the location for the building of a 250 kg. satellite which will use the launching facilities of the Soviet Union to put the satellite into orbit in 1974. This is a tight time schedule and it is the technical, scientific and space facilities of Bangalore that can possibly meet this difficult time table. Ecafe has established with the help of a group of Asian scientists an Asian Plan for Science and technology, whose main thrust is to use the continents' resources to meet our needs to purchase and adapt the technology that is needed. This is part of a World Science

Plan—a plan which has to be translated not only into regional but national and sub-national terms as far as this Country is concerned.

Health: The State Plan for Health, Family Planning, Nutrition and Sanitation summarised in Vol.II No.9 of the Bulletin recommends a linking of allopathic and indigenous systems of medicine first by giving each group a refresher course in the other systems and by providing for Siddha and homeopathic wings in the district hospital and polyclinics and mini health centres. The Union Government is planning to go further in the development of an integrated course based on different systems of medicine in the Country. To this end a proposal to set up a medical commission to study and recommend such a course is under consideration. The latest NSS survey throughout the Country on family planning reveals that 78 per cent of the target couples are aware of at least one method of birth control and that 41 per cent disapprove of the use of birth control to limit family size. This group is mainly among those who are in the poverty sector and who need to limit their family size the most. The vast ground to be covered by the programme is revealed in this study. While the condom is least associated with after effects, the IUD is most associated with after effects. Two thirds of the couples were of the view that a couple should have not more than four children, while 91 per eent of the husbands and 80 per cent of the wives wanted one of the children to be a son. The maximum outreach to the poor in mass media was the cinema. These results are of value to the family planning programme in the State and supports and complements the major findings in the Task Force report.

* * * * * *

Employment

At last the Dantwala Committee is beginning to be acted upon. The Union Government has instructed the NSS to adopt the methodology on computing employment proposed by the Committee. Instead of basing the survey on the traditional division into the employed, unemployed and non-workers, the procedure will be to refer to the daily recorded date on the activities of each person during a reference week, separately for different seasons and for different groups of the population, region, crop and irrigation patterns. Under this procedure, the day and not the hours of work each day will be the unit of analysis and the daily data will be collected for a week. Information will thus be obtained about this labour force and those outside and the actual conditions of labour supply in various categories. Also more realistic data will be available of the degree of commitment of those who withdraw from the labour market after seasonal work and the reasons for such withdrawal. With this kind of disaggregated information it should be possible to plan the employment generation programme for the Fifth Plan more realistically. Another fall out effect would be on the 1973-74 round of enquiry into the conditions of rural labour and their numbers. The last enquiry was in 1965 when the estimate arrived at was 8.57 million agricultural labour households without lands. These two enquiries should also have a direct effect on the urgent need to extend minimum wages gradually to all areas in this State and the Country.

* * * * * *

Third International Conference on "Modernisation of Asia":

Organised in Penang at the invitation of the Government of Malaysia in September, and following the first two conferences in Seoul, South Korea and Honolulu, Hawaii, and attended by some 100 specialists—scientists, sociologists, educators, businessmen, engineers and economists mainly from Asia—the conference noted a repudiation of the term—Modernisation of Asia—as being intellectually arrogant, meaningless in relation to a continent and smacking of neo-colonialism. In this view the need of the hour in Asia is to return to its values of brotherliness, non-violence, simplicity and limitation of wants and openness and capacity to assimilate everything good, such as science and technology. The conference was successful in enabling the Asian specialists to exchange views on what Asia will be like in the year 2001, what resources we have today which we should turn into programmes now in order to attain those goals as we enter the twenty-first century. There was agreement that our main resource is our people and that education is the key to mobilise them to attain the 21st century goals of sufficiency, inter-Asian trade and cultural planning and decentralised democracy. The problem of religious and ethnic tensions in the Asian countries were discussed and institutional and economic reforms to remove them were agreed upon. There was a good deal of discussion on the planning of our urban centres—drawing useful lessons from Singapore, Hongkong, Calcutta, Tokyo and Djakarta. All of Asia was at the conference except China and China's absence was felt at every point when discussing educational resurgence, social reform and urban and technological planning. This gap will, it is hoped, be remedied at the Fourth Conference in 1974 which will meet in the warless Vietnam.

* * * * * *

Rt. Hon'ble V. S. Srinivasa Sastri lecture:

On the occasion of Mr. Srinivasa Sastri's birthday, there were lectures, oratorical contests and discussions. It was a useful occasion when both old and young were reminded of one of the great men of this State, who fought valiantly for India within the framework of British rule, and who emerged as a leader of the Country and a representative at international conferences and assemblies. He was a bridge between India and the West, a bridge that we his successors so easily traverse. He was also deeply religious and deeply human—qualities which shone forth in his every day work in the Servants of India Society and in his contacts abroad. Rightly this year's brithday lecture was around the theme—India's International Image since Sastri—in which the stock taking of the last 25 years ago also shows us clearly the way forward.

* * * * * *

Meeting of Heads of Departments of Southern Universities:

To date the heads of departments of Economics of seven of the 14 universities have notified the Institute about their attendance at the meeting and the papers that they are submitting for various items of the agenda (see last issue). The acceptances are from Dr. G. T. Huchappa, Professor and Head of the Department of Economics, University of Mysore, Dr. A. Ramaswami, Professor and Head of the Department of Economics, Annamalai University, Dr. B. Sarveswara Rao, Professor and Head of the Department of Economics, Andhra University, Mr. C. Narayanan, Principal and Chairman, P. G. Board

of Economics, Calicut University, Dr. D. L. Narayana, Professor and Head of the Department of Economics, Sri Venkateswara University, Dr. V. Shanmugasundaram, Professor and Head of the Department of Economics, University of Madras and Miss M. Gajalakshmi, Professor and Head of the Department of Economics, Madurai University.

* * * * * *

Techniques of Perspective Planning Seminar :

The decision of the Seminar on the Techniques of Perspective Planning held on October 20 and 21 in Rajaji Hall, Madras, appears as the first article followed by a review of the Seminar.

* * * * * *

October Madras Development Seminar :

The October Seminar paper, Application of Scientific Methods in Family Planning, by Mr. C. D. Rajeswaran, Emeritus Professor of Economics, Madras, followed by a summary of the discussion of the paper under the chairmanship of Prof. S. Ramanathan, Joint Project-Director, Madras Institute of Development Studies appears as the second article.

* * * * * *

Third Article :

Another article, Small Scale Industries in the Fifth Plan, appears as the Third article.

* * * * * *

Book Review :

At the request of the author, a review of the publication, the Economics of Educational Planning appears in the review section.

* * * * * *

Bulletin Subscription for 1973 :

Those who wish to receive the Bulletin in 1973 are requested to fill in the form which appears as the last page of this issue and send it in together with Rs. 9 for subscribers in India and $1.50 for subscribers from abroad.

* * * * * *

Institute Publications :

In response to requests, from this issue of the Bulletin, the inside page of the back cover will contain information on the Institute's Publications, their price and where they can be obtained.

FINAL RESOLUTION OF THE SEMINAR ON PERSPECTIVE PLANNING.

I. GENERAL

1. *Organised* by the Madras Institute of Development Studies and the Institute for Techno-Economic Studies for the State Planning Commission,

2. *Meeting* at Rajaji Hall on October 20 and 21 in Madras

3. *Having heard* with profit and satisfaction the inaugural address of the Chief Minister, Chairman of the State Planning Commission and having discussed the Draft Perspective Plan Frame for Tamil Nadu 1972-84 and 11 supporting papers presented by the participants,

4. *Having benefited from* the conclusions of the Member, Union Planning Commission in his valedictory address to the Seminar,

5. *Believing* that the planning of Tamil Nadu development in the perspective of a 12 year period is essential for the attainment of the National and State objectives of raising the levels of living of the people, particularly the people living below or at the poverty line in the State,

6. Places on record its commendation of and satisfaction with the manner in which the State Planning Commission is preparing the Perspective Plan for Tamil Nadu.

7. *Invites* all official and non-official bodies, including the legislature, universities, colleges, research institutions, city and town corporations, and municipalities, union panchayat councils, chambers of commerce, employers organisations and trade unions, to continue participating in the planning process,

8. *Further invites* the Madras Institute of Development Studies and the Institute for Techno-Economic Studies to help the Commission in the follow up work of the Seminar,

9. *Calls* the attention of the State Planning Commission to the following comments and conclusions of the Seminar.

II. OBJECTIVES

10. *Endorses* the seven objectives of the Perspective Plan in light of the discussions and comments of the participants,

11. *Suggests* that the highest priority be given to ensuring accelerated growth in all sectors of the economy in order to double per capita real incomes, achieve full employment and undertake the selective attack on the worst forms of poverty, and proposes increased socialisation of the economy, in particular through the enlargement of the State public sector,

12. *Further* suggests that the quantification of the employment objective take into account the recent developments in definition and computation of back-logs,

13. *Recommends* an intensive study of the poverty line in Tamil Nadu, using alternative concepts and various primary and secondary yardsticks for this purpose,

14. *Suggests* that the inter-disciplinary and inter-sectoral approach of the Plan Frame be further pursued and strengthened in the establishment of the Perspective Plan,

III. STRATEGY

15. *Suggests* the exploration of the programme mix aiming at a higher rate of growth than that envisaged in the Plan Frame as a means of attaining its social justice objective,

16. *Recommends* programmes that will make special provisions for increasing the incomes of the weaker sections of the State as the only means of ensuring that accelerated growth benefits them,

17. *Emphasises* the importance of applying science and technology to the needs of dry farming, the small farmer, and the marginal farmer, to dairy and fishery development and the rapid expansion of the Small scale sector as a means of ensuring growth, expanded employment and increased incomes,

18. *Calls attention* to the importance of the transport sector including village roads as both an essential economic infrastructure and a means of increasing employment and incomes for rural people,

19. *Recommends* that labour intensive and intermediate technology be used to the maximum in all appropriate projects,

20. *Suggests* the early and intensive development of an integrated programme for meeting the current power deficit in the State and its future needs through combining in a productive mix, power from hydel, thermal and nuclear sources,

21. *Places* particular stress on the provision of education, culture, health, drinking water and housing facilities to the rural people for which the usual economic viability criteria should not be used,

22. *Suggests* that further work be done on the incremental capital output ratio by sectors and projects in order to take account of its varying constituents and to serve as a guideline for priority determination,

23. *Requests* that special attention be paid to plan administration particularly at the level of Government departments and suggests the maximum simplification of rules and procedures with regard to planning and administration of development projects, the monitoring of Plan administration by the Planning Commission, and a special programme for training plan administrators.

24. *Commends* the successful programme of District and Regional Planning and invites the attention of the Govenment to the need to decentralize plan administration to the district and panchayat union levels,

IV. PLAN INPUTS

25. *Suggests* that sectoral programmes be based on careful formulation and analysis of projects and an estimate of costs and benefits wherever appropriate,

26. *Emphasises* the overriding importance of establishing the sequence of project formulation and ensuring the integration and co-ordination of sectoral programmes into an overall plan, through using the systems approach,

27. *Recommends* a concerted effort be made to improve the collection and coverage of statistics in this State in order that the State Planning might have a firm data base,

28. *Further recommends* detailed studies with regard to the industrial complexes both current and future, on the basis of the accepted criteria with a view to their rapid and rational expansion,

29. *Is of* the opinion that the studies of the backward areas in the State should aim at identifying growth centres and formulating growth-oriented projects in industry and agriculture in those areas.

30. *Suggests* further studies on the viability of minor irrigation works in the State, and recommends heavy concentration particularly in the backward regions on intensified dry farming technology which has a low capital output ratio,

31. *Emphasises* the importance of proper water use and management of both surface and underground water in all areas of the State,

32. *Feels* that the Regional Plans should be used by the Commission as a means of promoting area development in an integrated manner in selected regions in the State, which would also harmonise development objectives with the larger human and social interests of the State,

33. *Is of the* opinion that district planning brings an element of precision and realism into State and National Planning and should be taken into account in any future re-organisation of districts,

34. *Is further of the opinion* that district plans should be essentially need-based plans, in order to verify and supplement the resource-based State Plan,

35. *Calls attention* to the importance of using the District Plans as means of creating people's participation, making the Perspective Plan a people's plan and so creating a plan ethos,

36. *Recommends* the strengthening of the expert staff of the District Planning Offices so that they may effectively undertake the appraisal of on-going projects with a view to establishing constraints that face district plans and monitoring the execution of the Fifth Plan projects in the district,

V. CONSTRAINTS AND RESOURCE MOBILISATION

37. *Urges* a more equitable distribution of Central resources so that Tamil Nadu might not continue to receive a declining rate of the Central investments and assistance,

38. *Notes* the constraints to capital formation flowing from poverty, lack of thrift, conspicuous consumption, tax evasion, the parallel economy, the acceleration of administration and non-development expenditures, mounting inflation and deficit financing,

39. *Recommends* that the mobilisation of additional resources for the Perspective Plan focus on (i) a reform of the tax structure and administration in order to counter tax evasion and mop up the resources in the parallel economy (ii) broaden the tax-base and increase tax buoyancy, (iii) taxing of the growing rural surpluses, (iv) raising of local capital for local projects, (v) promoting attitudes of thrift and simple living, (vi) increasing the share of loanable funds of the banking sector which can finance adequately the State's development projects, (vii) effecting economy in Government administration and plan development expenditures, (viii) undertaking studies to assess scientifically the Savings potential of the household and corporate sectors,

40. *Further recommends* that the present distinction between plan and non-plan expenditure, be reviewed and that development, programmes and projects be looked at in their totality,

41. *Suggests* that the efficiency of capital use can be increased by introducing project assistance in core projects, instead of following in current annual allocation practice, by effective utilisation of existing capacity and by developing a new type of economic entrepreneurship,

VI. PARTICIPATION AND OTHER

42. *Suggests* a continuing study of the social problems that are the inevitable accompaniments of industrialisation (as for instance, the influx of rural labour into urban/industrialising areas resulting in the emergence of slums, disruption of family life, etc.)

43. *Calls* on the State Planning Commission to enlist the full cooperation of the universities and colleges by contracting with them for work on sectoral and inter-sectoral linkages, development techniques and planning theories, market surveys and trade projections, local agricultural problems and prospects, the training of development planners and extension workers and suggests that universities and colleges ready themselves to participate in the planning process in the State ;

44. *Recommends* the increasing involvement and association of elected local bodies in future plan formulations and implementation,

45. *Reminds* the State Planning Commission that the participation of Panchayat Union Councils and Panchayats in State Planning is a function of the speed and extent to which their basic needs in public health, education, communication and agriculture are met and requests full support to the organisation of the proposed Rural Development Corporation ;

46. *Notes* the constraints faced by the private sector in the matter of raw materials shortage, power shortage, the increasing and overlapping regulations which leave little time for it to participate in State Planning and suggests these constraints be relieved on the basis of State, inter-State and Centre-State action, one effect of which would be that this sector with its practical expertise in long term planning would be able to make its contribution to the Perspective Planning of the State :

47. *Proposes* that the Madras Institute of Development Studies and Institute of Techno-Economic Studies organise next year a Seminar on Plan Administration.

THE SEMINAR ON THE TECHNIQUES OF PERSPECTIVE PLANNING

A Summary Report

The Seminar on the Techniques of Perspective Planning was held in Rajaji Hall, Madras, on Friday, October 20 and Saturday, October 21 and attended by 41 members drawn from Secretaries to Government and District Collectors, Panchayat Union Council Presidents, Private Sector and Bank representatives, Universities and Research Institutions staff, members of the State Planning Commission, and participants from Calcutta, New Delhi, Ahmedabad and Baroda. Thirty five district planning officers, district statistical officers and the planning officers of the Commission were also present. The Seminar achieved its major purpose of starting a public discussion of the Perspective Plan Frame and advising the Commission on the further formulation of the plan.

The Seminar was opened by THIRU M. G. RAJARAM as President who called attention to the main purpose of the perspective plan as being to provide fresh employment opportunities, meet the minimum needs of people in the poverty sector and promote accelerated growth in the economy. He called for a full discussion of the Plan Frame and the 11 papers which were before the Seminar and asked for its comments and advice to help the State Planning Commission discharge its responsibility. DR. M. KARUNANIDHI, Chief Minister and Chairman of the Commission inaugurating the Seminar stated that this Tamil Nadu Perspective Plan bid fair to become a path finding and pioneering attempt at State Planning. Planning has been accepted as a means of promoting development everywhere. The Tamil saying, even votive offerings and sacrifices consigned to the river should be measured out, indicates its origin in our culture. Despite some of the setbacks we have suffered in our four Five Year Plans and three Annual Plans in not attaining our targets, the perspective plan gives new hope as it is being developed with people's participation, with its base in district plans which is a novelty. The Task Force reports represent qualitative programming and he commended the proposals of the Education, Science and Technology Task Force which provides for a complete overhaul of the educational system and links education with employment. The theme of the perspective plan should be to improve the lot of the common man and to counter the growing unemployment. We need such a plan for the major power shortage crisis that we are facing in this State. Again large central project like the Sethu Samudram project when delayed sets back the development of the State. There is need to reduce, simplify and rationalise plan administration. He congratulated the Commission on the excellent work it was doing in preparing the perspective plan and called on the Seminar to give it its advice and counsel.

The second session was devoted to a discussion of the basic document, the Draft Perspective Plan Frame, which was introduced by DR. B. NATARAJAN (Chairman, Institute for Techno-Economic Studies). He pointed out that the Plan Frame's seven objectives are concentrated on doubling per capita real income which involves a growth rate of 7.6 percent which would provide a 4 per cent surplus after allowing for population growth and depreciation charges. The second major objective is to provide full employment for

some 20 lakhs of people. The other objectives can also be regarded as means. He called attention to the strategy of the plan frame which proposes heavy investment in sectors which have a high pay off to the application of science and technology, employment generation and district planning. This would involve correcting the present imbalances between the rural and the urban sector, a low capital output ratio of 2.3 : 1 and a drive to mobilise resources. THIRU ERIC DA COSTA (Director, Indian Institute of Public Opinion Research) commended the Plan Frame and emphasized that 7.6 per cent should be regarded as the minimum growth rate as the Union Planning Commission's 5.5 per cent rate would leave nothing for social justice after meeting the demands of the growing population and the replacement of capital. This means that the problem of growth rate and the anti poverty programmes are identical. Second special projects with low capital output ratio or what he called unviable projects must be devised to ensure that benefits accrue to the poverty sector. DR. A. RAMASWAMY (Head of the Department of Economics, Annamali University) referred to the many constraints such as the leakages in income, the growing idle labour, the planning failures and felt that the plan approach should not be conventional. He referred to the Chief Minister's inaugural address about weaknesses in plan administration and recommended a special programme for training plan administrators. THIRU R. PARTHASARATHY (Joint Secretary to Government, Gujarat) referred to the need for devising and using multiple yard sticks in defining the poverty sector for the State and the importance of multi level planning. He also referred to the need for improving plan organisation and implementation through emphasis on human resources, manpower planning and training of plan administrators. THIRU N. SUBRAMANIAN (Head of the Department of History, Madurai University) referred to the serious shortfalls in plan implementation which flows from the plan not eliciting the co-operation of the people. He proposed the establishment of a statutory body for monitoring plan execution and invited the Madras Institute of Development Studies to organise next year a Seminar on Plan Administration. DR. V. SHANMUGASUNDARAM (Head of the Department of Economics, Madras University) expressed doubts about THIRU. E. DA COSTA's distinction between viable and non viable projects. He contended that education belongs to the viable sector. THIRU K. K. NAMBIAR, (Retired Chief Engineer for Highways, Madras) emphasised the importance of transport in development theory and regretted its small place in the Plan Frame. THIRU TYAGARAJAN (Operations Research, Baroda) felt that ICOR should not be expressed only in terms of money. Resource mobilisation should be heavily concentrated on manpower resources. Perspective planning should build alternative multi sectoral models. He also cautioned against subsidised rural works programme. DR. B. RAMAMURTHI (Retired U.N. Advisor) called for more intensive studies with regard to the poverty sector and emphasised the need for special measures for the weaker sections. He warned against using the old methodology in computing un-employment and backlogs and called for a breakup of the aggregated into sectoral ICORs. The need of the hour is for a merciless examination of past projects. THIRU GENNAZANI (Operation Research, Baroda) warned against the classical growth rate approach in perspective planning and pleaded for the use of other more acceptable indicators such as equalisation etc. THIRU K. S. SONACHALAM (Railway Rates Tribunal, Courtallam) referred to the complexity of the full employment objective, its relation to technology and productivity needs to be fully studied and spelt out. He also referred to the problem of income policy and the conflict between raising rural wages and providing full employment.

The highlights of the session were : (a) endorsement of the objectives (b) a plea for an even higher rate of growth (c) the need precisely to define the poverty line in Tamil Nadu (d) the urgency of making special provisions for the weaker section (e) the call for further study of ICOR and the qualification of the employment objective and (f) the problem of plan implementation calling for a monitoring device and a special Seminar on the subject.

The third session dealt with sectoral programming on the basis of two papers. THIRU N. MAHALINGAM (Director, Sakti Sugars) introduced his paper which illustrating the problem of sectoral programmes in industry, power, agriculture and steel raises the question of which comes first. He pleaded for a coordination of sectoral programmes and their integration into the State plan, possibly through a small committee. DR. D. BRIGHT SINGH (Head of the Department of Economics, Madurai University on Deputation) introducing his paper, referred to the constraints imposed on programming through poor statistics in the State and explained the various tools of sectoral programming including the social marginal productivity concept project analysis, linear programming and the input-output table. THIRU K. K. NAMBIAR referred to the place of rural roads in the economic infra structure in the State and its high employment potential. THIRU R. SUNDRARAMAN (Indian Bank) referred to the use of the systems approach which makes possible both integrated sectoral programming and probabilistic analysis into which can be built elements that can trigger corrective action when needed. He suggested that modern management techniques need to be used more extensively in both plan formulation and administration. DR. V. RAJAGOPALAN (Professor of Agricultural Economics, Tamil Nadu Agricultural University) agreed with the need for improving our statistical base and felt that universities can help in this as his was doing. He also called attention to the effective use of programming techniques. DR. B. RAMAMURTI referred to the difficulties in the use of input output tables because of the problems being in a state of continuing flux and change. He suggested therefore that attention should be concentrated on major items, in particular on developing commodity tables and working out commodity balances. As a statistician he knew the problem of statistical imperfection but felt that with proper evaluation, our data could be used. With regard to the power crisis facing us, he suggested a long term perspective approach as the only means of solving the problem. The urgent need to reduce the growing gap between industrial and agricultural wages through improved productivity in the latter sector was also stressed by him. THIRU E. DA COSTA stated that with our past experience we should no longer waste our time in developing and using input-output tables. The employment problem facing us called for a long time plan on which we could use coefficients. DR. D. BRIGHT SINGH attempted a renewed defence of programming techniques and the use of quantified methodology even in the case of education and health.

The highlights of this session were consensus on the following : (a) an agreement on the need to improve our statistical data base (b) use the systems approach for the integration and co-ordination of sectoral programmes (c) leaving aside the use of input-output tables in our rapidly evolving and changing economy (d) the use of project analysis including the cost benefit tool in all appropriate cases and (f) the importance of the transport sector particularly village roads.

The fourth session which was devoted to District Planning was opened by THIRU R. PADMANABHAN (Collector, Dharmapuri) who referred to his experience of the District

level plan meeting the basic needs of the community particularly in water, roads and the social services. To prevent the plan from becoming an inventory of projects there was need for technical expertise in the District planning office to assess the viability of schemes and the feasibility of projects. There is also need for more research on the local soils in every district in order to extend dry farming. The districts had no idea of what their resources were and this needs to be rectified for effective local planning. THIRU K. CHANDRACHOODAN (Collector of Ramanathapuram) agreed with Thiru Padmanabhan and with the analysis and conclusions of Thiru Shiva Kumar's paper on District Planning. He emphasised the obstacles to district planning arising from their having no idea of what financial resources would be available, the overlapping between regional planning and district planning, the growing gap between allocations and execution and the need to simplify procedures and strengthen plan administration at the district level. He called attention to the difficulties facing family planning targets with the position of the Catholics and Muslims and the effects of the Salem conference. THIRU K. K. NAMBIAR stated that regional planning is preferable to district planning because regions have economic homogeneity and can be the subject of real area development. THIRU E. DA COSTA disagreed and stated that there is no alternative to the key position of the District Collector who needs for the design and execution of large projects a statutorily constituted District Development Authority. DR. M. B. ATHREYA (Indian Institute of Management, Calcutta) referred to the five major steps in district planning, namely, the clarification of objectives, the strategy for attaining the objectives, a structure for executing the programme, process difficulties and planning and control. The district plan faced three conceptual problems. Should they be need based or resource based? Should they function top downwards or bottom upwards? Should the organisation have both line and staff personnel? THIRU R. PARTHASARATHY referred to the experience of Gujarat in district planning where both area and district plans were in use. There is need for balance between the two and they should be made to rest on the authority of the Zilla Parishad. The District Collector needs much supporting technical staff for his task of district planning.

The highlights of this session were the following suggestions: (a) an agreement that district plans introduced realism and precision in State planning (b) they should be need based (c) there is a need for additional staff in the district planning office if it is to appraise projects and monitor their execution (d) the block development officer and his technical staff needs to be increased to improve plan administration.

The fifth session dealt with Area Programming. Dr. V. SHANMUGHASUNDARAM introducing his paper on Industrial Complex Studies drew a distinction between large monoproduct and large multi product firms. He traced the rapid growths of industrial complexes to the entrepreneurial skill in the State. There was need for the development of further complexes on the basis of feasibility studies using cost benefit analysis and capital output relationships. THIRU E. DA COSTA introducing his paper on Area Studies pointed out that the studies undertaken by him and summarised in the paper with regard to the differential status of development as between States and districts within the same indicate that the two key variables are irrigation and the irrigated area and the net value added by industry. The studies undertaken in Dharmapuri and checked against all India figures show that we have reached the end of the road on irrigation. Applying the econometric tool, it was found that the capital output ratio in minor irrigation in Dharmapuri

and all over India is around 4 or 4.5 : 1. He therefore concluded that the way forward for backward districts is to develop dry farming which with the new technology has the low capital output ratio of 1 : 1 THIRU E. C. P. PRABHAKAR (Secretary to Government, Rural Development and Local Administration) introducing his paper on Regional Planning referred to the need for land use planning and the preparation of basic studies prior to formulation of regional plans. Tamil Nadu has been divided into six regions and the planning is under way aiming at optimum resource utilisation in each region. DR. D. BRIGHT SINGH raised questions concerning the correlation on capital output ratio advanced by THIRU E. DA COSTA. He recalled the discussions at the third session when his approach on use of coefficients and input-output tables had been rejected. The values imputed to the equations by THIRU DA COSTA need to be proved. He also called attention to the distinction between capital output ratio and cost benefit analysis, stating that for agriculture, in its totality the latter tools should be used. He agreed with the third sessions' conclusion that there were too many variables to allow a simple use of capital output calculations. THIRU ATHREYA raised the question of the form of economy being promoted in the papers of Dr. Shanmughasundaram and Thiru da Costs. In advocating large scale dry farming are we in danger of developing capitalistic agriculture? In promoting industrial complexes are we in danger of creating unbalanced, pollution ridden megalapolises? The programme of regional planning is essentially a corrective to this. He felt that the debate on econometric tools in planning takes us back to the early days of Indian planning and the conclusion then was that this was not of great use in our situation. His major suggestion was that in the interests of social justice Tamil Nadu should develop a larger and viable public sector. DR. C. T. KURIEN (Professor of Economics, Madras Christian College) felt that in its heavy reliance on promoting growth rather than a direct attack on poverty and unemployment, the State Planning Commission was returning to the use of the classical approach in the four Five Year Plans. He has developed an alternative approach in a paper which he was circulating to the members of the Commission. He was prepared to accept Thiru da Costa's equation provided its values could be made explicit and checked against the available data. THIRU K. SOUNDARARAJAN (State Planning Commission, Secretariat) raised questions concerning the computation of net domestic product and the inter sectoral distribution of incomes. He wondered whether the equation for growth analysis could be applied to all States. THIRU J. SHIVA KUMAR (Collector, Coimbatore) raised questions concerning Regional Planning in the State which was still in a process of flux. He felt that with the development of homogeneous regions under district planning, any future reorganisation of districts should be based on this development. With regard to the issues of minor irrigation and their viabillty, he felt that the important question was integration in each area of surface and ground water uses and the conjunctive use of water available from major, medium or minor irrigation, involving for instance alternative wetting of land in different seasons, leading to optimal use of our scarce water resources. There is also need for district plans to ensure full use of local resources to which he would advert in the next session. THIRU GENNAZANI warned against use of coefficients and econometric tools in planning because they do not allow for technological changes, the human factor and rapid developments. He called for realism in planning and the use of alternative models based on real issues.

The highlights of this session were the following ideas : (a) agreement on the need to promote industrial complexes on the basis of the six criteria proposed by Dr. Shanmugasundaram (b) to develop regional planning as both a means of optimum area develop-

ment and a corrective to unbalanced growth (c) the suggestion for the enlargement of the public sector in Tamil Nadu (d) a complex of issues around the viablity of minor irrigation which need to be further examined and studied, (e) the need to develop rapidly dry farming though the new technologies and (f) the balanced and conjunctive use in each locality of our surface and ground water resources. The proposal for basing future district reorganisations on homogeneous regions was also noted.

The sixth session which dealt with the subject of Resources and Constraints in Planning was introduced by THIRU S. VENKITARAMANAN (Secretary, Finance Department who presented his paper with an explanation of the manner in which development creates resources and constraints through forward and backward linkages. In view of resources always exceeding estimates based on tax receipts, State loans and intra sectoral transfers, he proposed a liberal system of estimation. Savings can be increased by stretching and straining the Country's resources. The State has inelastic sources of revenue but expanding infrastructural obligations. He proposed that core projects such as power, irrigation, water should be eligible for project treatment and assistance rather than continue the system of annual allocation. Capital use can be considerably increased by more effective utilisation. For example the transmission loss in electricity which is 19 per cent could be reduced by 2½ per cent. There is also need for a review of the meaningless distinction between plan and non plan expenditures in order that the social services for instance may be looked at in their totality. He made a case for a new type of economic entrepreneurship which can encompass risk taking in both public and private sectors. THIRU T. S. VENKITASWAMI (Head of Economics Department, Presidency College, Madras) introducing his paper made a strong case for a high growth rate. The classical sources of capital formation are taxation and savings but technology can result in small capital producing a great output. He elaborated on the constraints facing us in capital formation arising from poverty and the low level equilibrium trap, the absence of thrift and the play of capitalism, egalitarianism and democracy, inflationary financing and declining foreign aid. He feferred to the possiblity of resource mobilisation from agricultural income taxation and the administrative problems involved in it. THIRU J. SHIVA KUMAR called attention to the possibility of raising local capital resources for local projects in the districts. THIRU R. PARTHASARATHI referred to one third of our economy being the parallel economy run by black money. He also referred to the need for new taxation and the simplification of procedures. DR. V. SHANMUGASUNDARAM referred to the work of the working group of the Commission on mobilisation of resources and the prospects for the many instruments for increasing savings and tax buoyancy. THIRU R. KRISHNAMOORTHI (Consultant, Planning Commission) referred to the rapid growth of administrative and non development expenditure, particularly of the Union Government, as a serious constraint and proposed a more equitable sharing of the Country's resources between the Centre and the States.

The highlights of the session were the following suggestions: (a) the need for a project assistance approach to core projects, (b) effective utilisation of existing capital and capacity (c) a review of the distinction between plan and non-plan expenditure (d) the development of economic entrepreneurship (e) the importance of technological inputs to improve capital efficiency (f) the constraints to capital formation flowing from idle labour, lack of thrift, tax evasion, black money, conspicuous consumption, the growing disorder in the body politic, the increase in administrative and non developmental expenditures,

inflation and deficit financing. The indiscipline prevalent today is leading not only to non-saving but destruction of existing capital assets in factories, educational institutions, public transport, railways etc. (g) the possibility of mobilising local capital for local projects was accepted.

The seventh session which dealt with the participation of various groups in the State in perspective planning began with the presentation of Dr. A. Ramaswami's paper by DR. V. RAJAGOPALAN who referred to the lack of originality in much of our research and suggested that university participation in perspective plan formulation must be ensured by contracting with the universities for research on specific problems, identifying problems of development including the social consequences of industrialisation, undertaking local research in specific areas, working on development theory and techniques and training plan administrators. THIRU V. KRISHNAMOORTHI (President, Panchayat Union, Nellikuppam) speaking on the participation of local bodies in perspective planning referred to the basic needs of the Panchayat Union in public health, education, communication, water supply and agriculture which must be met not in twelve years but in two years. That is the only way in which their participation in perspective planning can be ensured. The experience with the water, drainage and sanitation Board shows the successful prospects for the setting up of the Rural Investment Corporation for raising loan funds for the Panchayat Union Councils Projects. THIRU V. KRISHNAMOORTHI (Principal, Gandhigram Rural Institute) supporting the previous speaker presented his paper which makes the case for local bodies shouldering all local responsibilities and proposed three conditions for their effective participation, namely, the construction of a realistic target system, the formulation of a working plan for each area and the co-ordinated execution of the plan in perspective by the local bodies and agents. THIRU S. NARAYANASWAMI (President, South India Chamber of Commerce and Industry) speaking on the participation of the private sector in perspective planning referred to the many claims, consequent on raw material shortage, power deficit, the credit squeeze, the overlapping and increasing public regulations, inflation, on the entrepreneur in the private sector who has important skills in long term planning, but who is not because of his pre-occupations really a party to perspective planning. In so far as action by the State and Centre can relieve these constraints the private sector can participate in State planning. He made a strong plea for inter-State co-operation as the only means for solving the desperate power shortage in the State. TMT. SARADA (Retired Professor, Queen Mary's College) called attention to the importance of grass roots programmes like nutrition for village participation. She expressed regret that 50 per cent of the State being its women folk is not represented in the Seminar. THIRU S. R. JAYAVELU (Director of Statistics) explained the functioning of his department and welcomed the proposals for its strengthening. That would enable him to service the planning units more effectively. THIRU M. B. ATHREYA raised several questions concerning the private sector's participation in planning and called attention to its potential in the management field.

The highlights of this session were agreement on: (a) the need to ensure the participation of universities, colleges and research institutions through contractual arrangements, (b) the importance of project execution as a means of ensuring the participation of local bodies and (c) the need to ensure in every way the participation of the private sector.

At the eighth session Dr. Malcolm S. Adiseshiah (Director, Madras Institute of Development Studies) presented on behalf of the two sponsoring institutes, the draft final resolution which after discussion and amendments was unanimously adopted.

In the valedictory session DR. S. CHAKRAVARTHI (Member, Union Planning Commission), warned planners against over-concentration of efforts at mere resource mobilisation and capital allocation for sectoral programmes, relevant for medium term plans, and ignoring major problems to be dealt with in a perspective plan. Ignoring factors like the possibility of water resources and power potential in any region being completely used up in the next 15 or 20 years or the continuation of an educational set up that would merely produce absolete or unimportant skills would result in serious problems after a period. He urged the planners to nurture new strategies, techniques and institutional set-ups from now on and fit them into the medium term plans to counteract situations like scarcity of water or power. He wanted them to realise that the role of particular resources as also institutions also changed as the Country's economy developed, At present while the population growth had been recognised as a major economic factor, very little was known about the actual income distribution. Market changes in future incomes distribution as also resources distribution should be identified, Again, more than mere manpower forecasting, the planner had to assess which skills would become completely obsolete and which skills would have to be developed. Surely, after a decade, India would be using more computers and there would be greater automation. It had also to be decided whether agriculture of the present type could be sustained for a long time. Agricultural production should be suited to new industries. Thiru Chakravarthy said that very often atomic power was suggested as a way out of power shortage. But India's resource of natural uranium were not unlimited and it was also costly. Power grids were developing but attention had yet to be paid to inferior fuel utilisation. Cost of transportation of raw materials for power and high voltage transmission had yet to be assessed. He warned the planners to decide on the many changes that would be needed in planning in the light of these long term factors.

APPLICATION OF SCIENTIFIC METHODS AND FAMILY PLANNING

By

PROF. C. D. RAJESWARAN
Former Principal, Pachaiyappa's College

1. World Population Trends :

1.0 Early Periods :

From the dawn of history to the beginning of the Christian era (approximately) only the very haziest outlines of population developments have been discerned. Historians know, very roughly, the limits of the areas inhabited by "civilized" peoples and under their military control from time to time. The expansion of the ecumene can be depicted in broad terms, but what the population changes accompanying this expansion were is uncertain. That the several millenniums witnessed a slow growth of world population but at rates varying considerably from time to time seems highly probable; little effort has been made to estimate details of these changes except in a few very restricted areas and periods.

1.1 The Third Period :

The jutification for recognizing a third period, approximately coinciding with the beginning of the Christian era, is that some scholars have been willing to hazard fairly comprehensive guesses as to what the magnitude of world population and its general pattern of distribution were at that time. Bennett (1954, chap. i) cites estimates by Belock and Wright of the numbers inhabiting the continent of Europe at the beginning of the era and four hundred years earlier. Various scholars have put together serious purporting to show the growth of population in China since 400 B.C. (Taylore, 1956; Usher, 1956), although there is a good deal of variation in their interpretations of the source materials, Usher (1956) attempted a map of "stages of settlement" Eurasia in A.D. 14; significantly, the next dates for which he gives comparable estimates are 1340 and 1600. Historians seem fairly confident about major cycles of population increase and decrease in the Mediterranean. European world during the Christian era (Russel, 1956), and Bennett has ventured estimates of world population subdivided by continents at fifty-year intervals from A.D. 1000 on. None of the figures for this entire period, of course, is more than a carefully reasoned estimate, although greater confidence may be placed in the estimates for certain countries at certain times than for the figures for entire continents at any time during the entire period. None of the figures is derived from a "census" in the modern sense of the term; the available materials include partial counts and lists of various kinds to which highly approximate adjustment factors must be applied, and these are generously supplemented with conjectures based on fragmentary information about settlement patterns, subsistence techniques, trade activity, and the like. The analytical value of the estimates say, for studies correlating population movements and economic changes is compromised by the fact that the population estimates depend in part on what is known or suspected about economic conditions; the two are not wholly independent items of information.

1.2 The Modern Period:

The "modern" period is dated from 1650, primarily because the estimates of world population by continents made by Willcox and Carr-Saunders for that date have been widely accepted by demographers as a basis for describing population trends since that time (Bennett, 1954; United Nations, 1956), These estimates, like those for earlier dates, are highly conjectural. However, the modern period does witness the beginning of considerable interest in the facts of population, manifested in the appearance of numerous contemporary population estimates. The beginnings of essentially modern forms of population enumeration and registration also fall within the period. In general, the more recent the date within this period, the greater the coverage of world population by censuses. Even the most recent figures for world population, however, incorporate estimates for fairly sizable populations. It is doubtless no accident that the "modern" period in terms of our knowledge of the facts of population growth coincides with the "modern" period in terms of patterns of growth. The period since 1650 has witnessed a growth of world population at continually increasing rates, rates considerably above those believed to prevail over any other extended interval during the last couple of millenniums. One might add that the concept of "world population" as anything more than an arbitrary summation of regional populations only begins in this period. During this period the major subdivisions of the world have become economically and socially interrelated to such a degree that population growth in one region responds more or less directly to conditions in other regions; prior to this time population trends in the various world regions probably moved in virtual independence of one another. This is not to say that in the modern period growth takes place at a uniform rate in all regions—far from it. But forces of commerce, settlement, immigration, cultural diffusion, and military conflict come to be global influences on population in this period.

2. The Nature and Functions of Population Theory :

2.0. In a tentative synthesis of the materials so far presented, one may conclude that, according to demographers, the "ingredients" of theory include: (a) concepts defined within a frame of reference; (b) empirical propositions generalizations, or laws (which may vary in generality and creditability); (c) propositions, hypotheses, or theorems deduced or constructed from other elements of theory, with these taking the form of (d) "necessary relation", "models", incorporating necessary and/or empirical relations, or "purely hypothetical constructions." One might, therefore, be said to be "theorising" if he were engaged in such diverse activities as defining new concepts, elaborating a frame of reference, stating assumptions, making deductions or constructing explanatory or predictive models.

2.0.1 If the last statement is accepted, it can be interpolated here that a good deal of "theorizing" in demography takes the form of making what are called "population projections.' A projection is the deduction, from a set of assumed qnantities and relationships, of a "model" of future population change. Although projections often are made with the intent of supplying or suggesting a forecast of future events, it has been emphasized, by Hajanal (1955, p. 309) among others, that "a projection can be useful as a piece of analysis even if its accuracy is low."

2.0.2 In summary of the functions of theory alluded to by demographers, it appears that theory may be used to organize knowledge, guide or frame empirical research, furnish

criteria of relevance or raise questions for investigation; define variables; identify "universals" and limits of empirical variation; disclose gaps in knowledge; infer unknown quantities; generate propositions; explain relationships; interpret facts and predict. The emphasis placed on one or another of these functions may vary, or course, from one demographer to another, as may the amount of attention given to each of the several listed "ingredients" of theory.

2.0.3 The foregoing somewhat atomistic summary of the views of various population students on the nature of theory and the functions of theory probably does scant justice to any one of them. Nonetheless, certain critical observations appear to be in order, without implying that the criticisms pertain to any one writer in particular.

2.1 A Critique of the Population Theory :

To begin with, in comparison with the conception of the nature and objectives of science there is relatively little emphasis in the statements of demographers on the explanatory and predictive functions of theory. At least in the opinion of many writers on scientific method, what distinguishes propositions of a "theoretical" character from mere empirical generalizations is that the former state considerations as a consequence of which certain empirical regularities are expected to obtain and indicate conditions under which such regularities will hold; ie., theories are supposed to "explain" and "predict" the facts at the command of a discipline. Moreover, the greater the number and variety of such facts that are brought under the scope of a theory, the more powerful the theory is supposed to be. If this crucial feature of scientific theory is neglected, it becomes possible to accept as "theories" various bodies of discourse which incorporate several of the ingredients of theory (such as concepts, definitions, and deductions) but which fail to perform the principal functions of theory. It may well be, for example, that one of the typical shortcomings of population theories is that are stated so generally or abstractly that they fail to "make contact" with the facts or with regularities which have thus far been established empirically or, what comes to the same thing, that their predictions are of such a general character that they are not readily refuted or confirmed by evidence now available or likely soon to become available.

2.1.1 Second, the preceding criticism may be closely related to the fact that demographers appear to emphasize insufficiently that "theory" is but one element or aspect of a corpus of scientific knowledge which does not develop in isolation from other aspects of science. Thus in failing to emphasize sufficiently the distinctive function of theory, demographers may also have neglected to bring out the close interrelationship between theoretical development, the accumulation of substantive knowledge, and the verification of hypotheses.

2.1.2 Third, it is not evident in the cited writings of demographers that "theories" may be stated at widely varying levels of generality and with greater or lesser or scope applicability. It is possible that some of the concern over lack of theory in population studies reflects a failure to recognize that the functions of theory can be performed at different levels of specificity and that each level is potentially significant for some purposes. For example, a "theory" at the least specific level may merely indicate what variables are related to population variation and change. The content of the "theory" would then be in the form, "Y", a dimension of population variation or change, is explained by

variables, $X_1 X_2 ..... X_n$. More specifically, the "theory" may be able to specify in qualitative terms how these several variables are interrelated; or it may go further and suggest the direction of the effect of one variable on another, perhaps specifying the mathematical form of a model of population change, without being able to supply the actual values of the parameters in the model. At the most specific levels a "theory" may actually permit the derivation of numerical estimates of such parameters or finally, (as in the case of population projections for example), predict the value of some particular variables to be observed at a specified place and time. It would appear that the level of generality and the scope of applicability of theories, are related in such a way that it is difficult to achieve the level of specificity desired while maintaining as broad a scope as would be desired. To achieve broad scope, it may be necessary to go to the level of least specificity, at which the most a theory can say is that "such and such factors are probably involved". Of course, the "explanations" and "predictions" yielded by a theory at this level are likely to be so vague as to be trivial and uninteresting. On the other hand, where a theory specifies a mathematical form for certain inter-relationships (the logistic theory of population growth is a good example for the point at issue here, apart from other considerations which call into question its acceptability as a theory), it is likely to be found that it applies only under certain special circumstances; moreover, it may prove impossible to specify exactly what these circumstances are. In sum, a richer conception of the levels of generality of population theories would enable demographers to develop more useful notions of the functions they may expect population theories to perform.

2.1.3 A final observation on demographers' conceptions of theory is that most of the writers appear to assume that population theory should emanate from a single frame of reference, whether it be that of some single discipline (such as sociology) or that of hypothetical "multiscience" but "integrated" discipline of population study. They appear in general, to have overlooked the implications of the fact that studies of population are conducted from a wide variety of frames of reference and that the explanations and predictions stemming from one may be quite different in character from those produced by another. In particular, insufficient attention seems to have been given to specifying the relationship between the mode of explanation in terms of "components of change" (which we identified earlier as the characteristic type of explanation afforded by demographic analysis per se) and "casual", "functional", "motivational" or other kinds of explanation afforded by the theories prevailing in the several disciplines giving systematic attention to population.

3. The Malthusian Theory & Others :

3.0 A noteworthy statement of deficiencies of Malthus' writing on the theory of population is that of Davis (1955), which has already been referred to in connection with its unusually clear explication of the nature and functions of scientific theory. Davis examines successively Malthus' frame of reference, his theory as a deductive system, and the empirical generalizations which Malthus advanced. He finds serious conceptual inadequacies in the frame of reference partly attributable to Malthus' failure to distinguish scientific from moral ideas; faults in the logical structure of Malthus' arguments; and defects in the empirical evidence on which Malthus relied. Moreover, Malthus' lack of appreciation of the separate, if complementary, roles of those elements of theory is held responsible for a lack of clarity and consistency in his presentation and

for various weaknesses in his conclusions. On the whole, Davis' paper is an elegant critique of the *Essay on Population* which either reiterates or subsumes most of the significant contributions of earlier critics; it is a valuable statement of the need for correcting " those who praise Malthus because they believe his theories are valid, and those who dispraise him because they believe his views are unimportant. "

3.0.1 Of the writers who have chosen to emphasize enduring values in Malthus' work, some have pointed to important aspects of his work that are sometimes neglected, while others have brought out the potentialities of a modernized statement of the general Malthusian framework. Representative of the former category is Spengler's (145) recapitulation of the " whole of Malthus's population theory ", laying stress on views stated in Malthus' Principles of Political Economy which commonly are overlooked by commentators. It is pointed out, for example, that while Malthus regarded the available means of subsistence as setting the upper limit to population growth, the course of growth prior to reaching such a maximum depended on the effective demand for labour; moreover he gave considerable attention to industrialisation both as a means of dissolving obstacles to the expansion of the demand for labour and consequently to the growth of population, and as a factor instituting conditions favourable for controlling population growth.

3.1 Two Restatements of the Malthusian Theory :

Two noteworthy restatements of Malthusian theory, using the tools of modern economic analysis and stressing its value as a general system, are those by Peacock (1956) and Boulding (1955) Peacock suggests that the "theory is a more general one than is sometimes supposed"; that it is not merely a static "equilibrium theory" but encompasses both short-run oscillations and secular changes; that the Malthusian analytical frame work can be used to advantage even if one questions the "general validity of the Malthusian assumptions"; and that Malthusian theory must be conceded at least to have "general interpretative value" as a theory of economic development" as well as specific "applicability" at least in the short-run, to certain areas". At one point Peacock appears to concede that the "level of abstraction" of the reformulated Malthusian analysis may appear excessive: " The attempt to proceed by successive approximations towards reality seems to take us away from reality altogether. We are prepared to accept the broad strokes of the Malthusian brush to rivet our attention on a fundamental problem, but once we modify the picture with the details required by actual conditions, we seem to lose sight of the significant problem." Boulding contends that the Malthusian model "in its generalised form is applicable to almost any situation of population equilibrium or even dynamics". Like Peacock (and many other writers) he feels that " the Malthusian system especially as an equilibrium system, throws light on many historical situations." Moreover, the system is readily elaborated in terms of dynamic models. In fact, "the very richness of the dynamic model universe is an embarrassment. The real world is more complex than any of them, and on a prior consideration one model is not much better than another." Nevertheless, a study of the simpler dynamic models is claimed to be valuable as a guide to parameters that may be found in the real world.

4.0 The Optimum Theory :

Like Malthusian theory, the optimum theory from time to time is pronounced dead by its critics; nonetheless there continues to be a fairly steady stream of writing on the

subject even if it no longer appears to be at the centre of interest. It is of course, no guarantee of the validity or even the significance of an idea that it inspires discussion, and great many demographers with primarily empirical interests doubtless agree that the optimum is an example of a "concept forever stillborn" (Vance, 1956, p. 90).

4.0.1 One problem that plagues population theory and research is especially salient in regard to optimum theory; the difficulty of separating normative considerations oriented to problems of policy from factual considerations oriented to research problems. The very term "optimum" of course, signals the intrusion of normative elements into the discussion of population. In fact, a good share of the literature on optimum population is concerned with deciding what criterion is the appropriate one on which to determine an optimum. Clearly this is an issue which cannot be resolved solely on empirical grounds or by scientific theorizing alone.

4.0.2 There are, however, two kinds of questions whose answers are not in principle, beyond the reach of scientific methods. First, given a supposed relation y = y (p) in which the variable y is asserted to vary with population, it is in principle, possible to investigate the existence and form of the relation and to determine whether there is a unique value of P (or range of values) that maximises y. In making such a determination it is, of course, necessary in one way or another to take account of other variables which may also be related to y. Whether these operations can be satisfactorily executed with available data is another question. Significantly, the problem is usually treated in purely deductive fashion on ceteris paribus assumptions about the other variables. Second, it is possible, again in principle, to determine the relationship of y to some other variable, say x, which likewise may be related to population by a function x = x (P). If the behaviour of such functions has been established by scientific methods, the implications of substituting x for y as a criterion of optimum population becomes much clearer. It may be that y and x are so highly correlated that it makes little or no difference which is the criterion, or they may be so loosely related that optimum population on the one basis is quite different from that on the other. In this measure, the scientific investigation can make a contribution to the problem of choosing a criterion without ever being able to resolve the problem of choice per se. It should be mentioned, finally, that (in principle) the scientific side of studies on optimum population can be carried out in terms of some index number, defined, say as I = I (x,y) investigating the form of its relationship to population, I = f (P), existence of maximum values of I, and circumstances affecting the influence of P on I. Again, however, the acceptance of the index functions, I (x,y) as a criterion of optimum population is governed by extra-scientific considerations.

4 0.3 The gist of optimum theory—as an empirical theory as distinguished from a normative theory—is very simple. Given a criterion, y, the theory asserts that for a specified set of relevant conditions the function y (P) increases over a range of "low" values of P, reaches a maximum, and then decreases as P increases; i e., y = y (P) is a curve concave to the X-axis with a single hump. This theory-or perhaps more accurately, hypothesis is deduced on the following kinds of assumptions: a criterion of optimum population, y, usually per capita real income or some closely related variable, is given; conditions with respect to such variables affecting y as resources, technology, and patterns of social organisation are assumed to be fixed; and some components (notably

those responding to economies of scale or the division of labour) of the aggregate y are assumed to be subject to increasing returns with increasing P, and others (notably those dependent on extraction of fixed resources) to diminishing returns. On these assumptions, y (P) will have a maximum value at some point, Po, of intermediate value with respect to the range of P. This value will depend, among other things, on the relative importance of the two kinds of components of y.

4.0.4 To indicate the various refinements that can be made of this formulation is unnecessary for the present purpose, which is to bring out the major issues raised by optimum theory. Some of these issues may be listed in summary fashion : First, the choice of criterion, as has been indicated, involves extra-scientific considerations but is subject to clarification by scientific methods notably in respect to the character of the index-number problem involved in using any aggregative or multivariable criterion of the optimum (Peacock 1957). Second, the theory is static; influences on y, other than P, are held constant. This means, fundamentally, that the nature of the function y = y (P) cannot be established by direct empirical observation, because when P varies in the real world there is also concomitant variation in technology and organisation, among other things. Third, the static character of the theory is in contrast to the volatility of the optimum which must be subject to greater or lesser variation with changes in relevant circumstances, including opportunities for trade with other populations. Fourth optimum theory may entail assumptions about the co-variation of population size and population composition that are unacceptable; a population of optimum size may be one with an age composition relatively unfavourable to per capita productivity. In this instance, as in others, the ceteris paribus assumptions may actually involve logical inconsistencies or unacceptable empirical hypothesis. Finally, these several difficulties call into question both the possibility of ascertaining the optimum and achieving an optimum population through the exercise of available population policies (Leibenstein, 1954 chap. ix) Whether or not optimum theory is acceptable as a guide for policy like the choice of a criterion, involves extra-scientific considerations; but it is in principle, open to scientific methods to determine whether a given set of policies empirically can produce a population of optimum size. The likelihood that any readily available policies could do so is considered low by critics of optimum theory.

4.1 *Objections to the Optimum Theory Answered :*

Various answers to these objections to optimum theory have been offered. Possibilities for casting the theory in dynamic, rather than static, terms have been indicated (Leibenstein, 1954, chap. ix). Proponents of optimum theory, conceding that the optimum is subject to change, have given reasons for supposing that it is not highly volatile and, in particular, that it has not increased rapidly in recent decades in industrial countries. Admitting that optimum theory is not a sufficient basis for policy, the proponent may insist that good evidence of an actual population well below or well in excess of the optimum is a highly relevant consideration for framing policy. Finally, despite the difficulties in ascertaining a unique value of the optimum at any given time, the theory is asserted to have value in directing attention to the phenomenon of depressing effects of population growth on per capita income and the desirability of investigating the status of various industries in respect to increasing or decreasing returns (Gottlieb. 1956).

4.1.1 One is led to the conclusion that the potential contributions of optimum theory, whatever they may be, have been prejudiced by the combination of normative and empirical considerations in the frame work of a single doctrine and that, partly, as a result of this, there has not been a vigorous prosecution of the kind of empirical research suggested by optimum theory (the last point is readily admitted by proponents of optimum theory; see Gottlieb, 1956).

5.0 *The Transition Theory*:

Certain of the writers (notably Moore and Vance) have cited the "theory of demographic transition" as an example of the kind of theory needed in population studies. No doubt this opinion would be endorsed by a goodly number of demographers, as may be judged from the frequency with which favourable allusions are made to transition theory.

5.0.1 One major aspect of the theory is the "generalization of the historical demographic experience of Western countries which have achieved very low levels of mortality and fertility" (van Nort and Karon, 1955, pp. 523). The growth of European peoples in the modern era involved declining mortality, which was produced by "the whole process of modernisation" including "rising levels of living, new controls over disease, and reduced mortality" (Notestein, 1945, p. 39). Fertility responded more slowly to modernisation but ultimately began a decline through the widespread use of contraception, under the impact of such forces as "the growing individualism and rising levels of popular aspiration developed in urban industrial living". (Ibid, p. 40).

5.0.2 The use of transition theory as an "analytic tool" (van Nort and Karon, 1955, p. 523) involves some further generalization. "The more rapid response of mortility than of fertility to the forces of modernisation is probably inevitable" (Notestein 1945, p. 41). Accordingly, population may be grouped into three classes according to "demographic types" or "state of demographic evolution", first "incipient decline" or transition completed; second "transitional growth, with mortality declining ahead of fertility ; and third "high growth potential" or transitional growth not yet begun (Notestein, 1945, 1956). As these categories imply, and as is suggested by a study of the beginning of economic development and demographic transition in certain non-European countries "the principles drawn from the European demographic transition are widely applicable throughout the world" (Notestein 1953, P. 21).

5.0.3 A significant issue that arises in connection with transition theory has to do with its level of generality. On one hand, Vance (1956, pp. 91-93) refers to the "Great need for the development of integrated theory of a high order" and suggests that "the framework for one such theory is now emerging" in the work of Notestein and others on the "theory of demographic transition". On the other hand, Notestein himself states: "In demography our theory of the broad processes of population change seems to have been sufficiently tested to prove its general validity. It is adequate to delineate the nature of the problem at hand. But it does not answer the concrete questions on which information is needed either for purposes of prediction or for the formulation of policy. In demography it seems to me that there is less need for work on the over-arching theory of change than for knowledge at lower levels of generality". (Notestein, 1953, p. 27).

5.0.4 Issues as to the validity of this theory (only an incomplete sketch of which has been given here) arise on several levels. First, is the description of population changes among Western peoples accurate? Even apart from short-run fluctuations, certain cases, such as the earlier decline in birth rates in France and America, require ad hoc explanations. Second what are the relevant components of the "whole process of modernisation? In presentations of the theory thus far, various lists of such components have been presented, but it is conceded that "at present we cannot either list all of the factors involved or attach precise weights to the factors we can list" (Notestein, 1953, p. 18). Significantly the factors listed range over several levels of abstraction, from "urbanisation", the "development of modern technology", and "economic development", through "ideals and beliefs" and "population education", to motivation for the reduction of births". The observation that demographic transition appears to have commenced in some cases where one or another of such factors was absent or not to have begun despite the presence of one or more of them suggests that the theory is as yet incomplete on the explanatory side.

5.0.5 Finally, what of the predictive value of the theory? In the light of the "body boom". it seems that "incipient decline" is not an accurate short-run forecast for all populations under a regime of controlled vital processes. Instead, the "important fact is that populations of this type can check their growth any time it becomes desirable to do so" (Notestein, 1956 pp. 38). The controls on future population growth, therefore are of a type not taken into account in transition theory as such. With respect to countries under-going transitional growth, it is clear that the tempo of change currently differs from that observed in countries completing the transition earlier. For example, "the mortality experience of Western nations provides little precedent for the changes taking place in a growing number of the areas usually classified as "under-developed"...... The recent trends approach or exceed the most rapid ever encountered among the nations with lowest mortality to-day" (Stolnitz, 1956-a, pp. 1-2). Evidence to date, however, tends to favour the gross prediction from transition theory that mortality decline leads natality decline. Regarding the third category of populations: "To say that the principles drawn from the European analysis apply to the world's present areas of high fertility is, of course, a far cry from saying that we may expect events to take a similar course" (Notestein, 1953, p. 21). Reasonable forecasts for such countries require assessment of their initial levels of population density, existing natural resources, and prospects for economic development, among other things; and it is often pointed out that the "values" carried by these populations may not be susceptible to changes from the same sources that purportedly modified Western "values" pertaining to family size. In fact, discussion of transition theory in respect to countries of "high growth potential" less often runs in the direction of making predictions than to a consideration of the nature of their "population problem" and of the desirability of the alternative courses of population policy open to them, whereupon, of course, it wanders, outside the realm of strictly scientific discourse.

5.0.6 In terms of its substantive application, therefore, transition theory raises issues in respect to its adequacy as descriptive generalisation as ex post facto explanation and as prediction. But apart from its validity in any of these respects, transition theory raises an issue of quite general significance which it is well to emphasize in the context of the present discussion. The theory purports to be relevant only, or at least primarily, to what was earlier called the " modern period " of population history, roughly the last three centuries. Cowgill (1956) among others, has pointed out that the sequence of

changes comprising a "modern" growth cycle—declining mortality followed by declining natality—is but one of several such possible sequences; that periods of growth in the past probably involved a different sequences; and that the "future cycle", for countries having done through the "modern cycle", will likewise be distinctive. The circumstances likely to attend the occurrence of one or another type of cycle are outlined, but necessarily in rather hypothetical terms for want of many relevant data. On the basis of such analysis one might inquire whether "transition theory" should be considered a special case of a more general "growth theory" which has yet to be outlined in any detail or whether it should be accepted as a historical theory capable only of characterising a historically unique era. In the latter event, does it become necessary to develop different "historical theories" for all distinguishable historical eras? If one pursues this line of reasoning, must he conclude that to retain its empirical character, the study of population must be cast in the form of population history rather than population theory in the sense in which "theory" is commonly understood in science as a body of general explanatory propositions? Is it only by confining himself to a particular brief historical period that the population student becomes convinced of the possibility of developing "theory" in a generic sense? Some demographers who stress the present short-comings of population theory and the desirability of "high-level" or "integrated" theory have nonetheless conceded the improbability of discovering general "laws" of population growth. Can the requirements of "high-level" or integrated theory be met by a type of theorizing which accepts not even a "laws" but a somewhat flexible pattern of analysis and explanation, different for each distinguishable era of population history?

5.0.7 Analogous questions can be raised in respect to most theories in the social sciences and social scientists are arrayed on quite a wide spectrum of positions in regard to historicism. The issue is one that, in the nature of the case, is probably not resolvable once for all by abstract reasoning.

6.0 *Psychosocial Theories of Fertility :*

For about the last twenty years a small group of American demographers have been making investigations of "social and psychological factors affecting fertility". Their efforts have become widely known through the successive reports and summaries (probably exceeding forty in number) of "the Indianapolis Study" and through publicity given the plans for additional studies along somewhat similar lines. At the risk of giving a somewhat distorted conception of the psychosocial studies, attention will be confined here to what seem to be three paramount issues; the role of theory in these studies, the conception of psychosocial factors as intervening variables and the use of psychosocial hypotheses in explaining fertility trends and variations.

6.0.1 It appears that in organising the Indianapolis study the investigators, an interdisciplinary committee including social psychologists and other social scientists along with specialists of fertility addressed themselves to the construction of twenty-three hypotheses concerning "social and psychological factors affecting resort to contraception and the size of the planned family" (Kiser and Whelpinton, 1956, p.257). Subsequently, they were constrained to note that "a recurrent criticism of this study has been that it laeked sufficient theoretical and conceptual organisation". (Mishler and Westoff, 1955, p.121). Interestingly enough the presumably unfortunate consequence of this omission are not made wholly clear. In a summary of "methodological lessons" of the Indianapolis Study (Kiser, '56)

the criticism is reiterated that the "twenty-three hypotheses of the Indianapolis Study were not bound together by an integrating theory or organising principle", but the defects associated with this fault seem merely to be that "too many factors were included", that the "variables were not always precisely defined", and that "the variables......were not always measured". These surely are technical or procedural deficiencies rather than matters of integrating theory in any generic sense. The investigators appear to assume that working on the basis of "a systematic sociological or psychological theory (Misheler and Westoff, 1955, p.121) would improve future studies, as compared with the "dragnet" approach" (Kiser, '56 p.153) of the Indianapolis study, but the grounds for this belief are made wholly explicit.

6.0.2 Significantly, in developing plans for further research, the investigators have rejected the scheme of selecting a "particular approach" and "developing a particular theory of fertility" to be "tested through research, because there are insufficient grounds for selecting any particular theory which would automatically restrict the types and ranges of data gathered." In elaborating statement they say :

> The theoretical approaches which have been discussed are concerned with different "levels" of data of and with different "levels" of interpretation and do not really meet each other head-on as alternative explanations of the same event, that is some of them are psychological theories and others are sociological theories in a restricted formulation which deals with a particular abstraction from the world of behaviour. For this reason, each in itself would be inadequate for the prediction of fertility which is a concrete event taking place at a particular point in social-historical time. It would be possible, for example, to develop a relatively adequate interpretation of some psychological theory, but this would not provide an adequate interpretation of fertility performance (Mishler and Westoff, 1955, p.128)

Among other significant premises of this statement are the assumptions that working with a "particular theory" is antithetical to the prediction of..... a concrete event" and that the latter is the appropriate aim for the research. It is by no means clear wherein "the choice is not simply a bow in the direction of eclecticism" (idem) and in what respects it represents an advance over laying out twenty-three hypotheses lacking in "sufficient theoretical and conceptual organisation". what the investigators do not propose to use is a "conceptual frame work or 'moral' which (permits) the description of the major elements of the concrete situation within which the fertility event takes place". (Ibid, pp.128-29). As expounded, this "conceptual frame work" appears to amount to a prior classification of "dependent variables" and "independent variables" whose use "entails a certain risk that the hypotheses which are formulated will form together less of a unified whole than would be the case if the study were developed in terms of a single body of theory" (Ibid. p.131). It seems clear that the investigators of psychosocial factors are greatly concerned about the role of theory in research ; this role is considered important but they are unable to specify clearly for their purposes, what it is. It may be too, that they have hit on an issue of signal importance for population studies in general in stating an antithesis between testing a particular theory and the prediction of a concrete event. If like most demographers, they prefer to attempt the prediction or explanation of concrete event they seem prepared to sacrifice some of the elegance of an integrated theory.

6.0.3 Turning to the second kind of issue raised by the psychosocial studies of fertility, it may be noted that the investigators have consistently maintained that "to account for

the variations in fertility in which we are interested (Mishler and Westoff 1955, p. 121) it was necessary to "investigate the social and psychological factors affecting resort to contraception and the size of planned family" (Kiser and Whelpton, 1956, p. 257). Or as one commentator put it, the ultimate aim, as he saw it, was to predict intimate individual or paired behaviour within a given social context. Thus the study should be focussed on motivation" (views attributed to W.E. Moore, in Kiser, 1953, p. 476). It was, however, only in retrospect that any lengthy justification of this position, which apparently was taken to be almost axiomatic, was attempted. In describing plans for new studies, the investigators make reference to a conceptualisation by R. M. MacIver involving "three classes of factors (1) the cultural background, (2) the motivations; and (3) means of family limitations......... Cultural background factors including such matters as industrialisation emancipation of women, urbanisation and extension of public education, could only indirectly contribute to the decline of the birth rate. There had to be a mediation of these factors through motivations or personal desires regarding family limitations. The concept "means of family limitations" includes contraception, abortion etc." (Kiser et al., 1956, p. 47). Finally at least one of the investigators had the temerity to refer to "causes" of differential fertility and has characterised the Indianapolis study as a "land mark in this research field...... ...the first major study to test empirically substantive hypotheses which raise the question "why" (Westoff, 1956, p. 401).

6.0.4 It is also interesting to note the investigators' assumptiom that "information about the motivations and interests of married couples regarding the planning and having children and the factors responsible for differences in fertility...would be helpful in the event that the development of a national population policy should be undertaken in the United States" (Westoff, 1957, p. 74). Apparently it was believed not only that "motivations and interests" are the critical determinants of fertility but also that these factors are susceptible to manipulation with the means at the disposal of a national population policy. This hypothesis, of course, would require separate investigation and the students of psychosocial factors have not yet turned their attention to it, perhaps because the probability that such a policy would be implemented now seems smaller than it did in the late 1930's.

7.0 *Social Checks to Fertility?*

In the early period thoughts were directed towards increase in fertility. Therefore investigation was usually into the causes of barrenness. Writers were reticent over population and would certainly not advocate any deliberate fostering of obstacles to fertility.

7.0.1 About the end of the 18th century the notion of static society was shaken and finally crumbled. The rise of the American colonies, the French revolution and the discovery of Australia upset many notions of remarkable distribution of population. At any rate economists from Smith to Mill and political writers from Godwin to Macaulay shared the vision of a rise whether they claimed that all happiness lay before them or that their world was already the best of all possible worlds. To all these discussions the impact of Malthusian Theory lent importance. The outstanding feature of these writings in the sense of immediate relevance to the historical changes is the condition in which hopelessly poor having no hope of rising in the world to be focussed in agrarian societies

or in the streets of urban areas. The ascending people who restrict their fertility to achieve production to a new social class are found in expanding industrial society. In fact the short history of the social theories to population trends is that we can only distinguish two major epochs that of the pre-industrial or stationary world where separate checks to fertility are observed and the industrialising world where the checks are never isolated but work in conjunction with each other through the total environment of the individual and the family.

7.0.2 In the limited discussion of one aspect of population theory, that of the social checks to fertility the only method of evaluation is to relegate them to their place in the Malthusain System.

7.0.3 According to Kingley Davis one can construct a frame of reference within which to set the Malthusian system of directive reasoning.

Capacity for population growth	Checks to population growth	
	Preventive checks	Positive Checks
Instinct of reproduction	Voluntary or rational limitations on births	All causes of mortality
	Moral restraint. Vice.	Vice. Misery.
	Means of subsistence in each category	
	Land-Arts-Social Organisation in each category	

7.0.4 The instinct of reproduction is continuously pushing the population in an upward direction and a number of economically and socially conditioned forces restrain its indefinite growth.

7.0.5 What we have to study are the checks within human control (i. e.) human reaction against the background of their social environment and economic development. Therefore Malthus's system revolves round the question of available means of subsistence and their inter-action with population size. Economists are more concerned with physical production of the means of subsistence and with the demand for labour whereas the sociologists take this economic environment as given and concentrate on the individual's reactions to the present set up by the system of production and distribution.

These divisions may be set out as follows :

1. According to opinions as to the natural tendencies of population—to increase, to decrease, or to remain stationary, to grow within limits, or to fluctuate according to condition.
2. According to what is thought desirable—a larger, smaller, or stationary population.

3. Amongst those who think that population tends to grow and think it ought not to grow so fast—those who believe that natural forces, if left free play, will ensure the correct result, and those who think that intervention is necessary to secure it.

4. Amongst those who think that natural forces will secure the necessary checks, those who think that voluntary abstinence is possible, and those who think that contraception is part of the natural scheme.

5. Amongst those who think that intervention is necessary to secure a check to population growth, those who would achieve it by marriage legislation, and those who would do it by birth-control propaganda by governments.

6. Amongst those who think population tends to decrease and ought to be encouraged, those who would confine themselves to negative means (prohibition of birth-control), and those who would give positive encouragement (family allowances).

7.0.6 To use Kingsley Davis's scheme again : the available means of subsistence, as conditioned by technical and social organisation, determine how many people may be kept alive at any one time, given a stationary standard of living. Thus the economic forces are those which determine population through productions and the demand for labour. In this sphere there is no need for a 'moral restraint' category, or indeed the preventive check at all. But once we start assuming that people are frightened of a premature and/or of a lower standard of living, and adjust their marriages (or fertility) accordingly, we are concerned with social issues. Now Malthus' teaching was at its vaguest on precisely this question: whether there was a fixed standard of living, whether this was at a subsistence minimum or not, and whether this standard or standards could move independently of the size of population.

7.0.7 18th Century has seen a gradual decline of the ... pro-populationist views. Few felt that there was danger from over-population or disproportion without energetic measures to redress the balance. Into this calm atmosphere came Malthus's warning.

7.0.8 Malthus's reliance was on the cultivation of moral restraint. He took a gloomier view of the operation of positive checks at all times. And he had slightly different conception of the likely origins of moral restraint and his method of promoting moral restraint varied from others.

7.0.9 In other parts of the Essay Malthus drew attention to various aspects of the social background to increased prudence. It can be shown that he knew the connection between industrialization, civil liberty and prudence. He repeatedly referred to 'luxuries' and the necessity for spreading them throughout the nation, to increase the desire for restraint, and analysed at great length the evils resulting from the concentration on production of useless frivolities for a small class of proprietors. We have also seen that he implicitly accepted the argument that towns were unfavourable to population, though more so through the prevalence of the positive checks than through the operation of greater moral restraint. On property, his views are again somewhat confused, though he was sure, as were his predecessors in the eighteenth century, that excessive concentration and primogeniture were obstacles to greater population. This did not lead him, however,

to advocate such concentration, since the total amount of subsistence thus produced would also be less. He knew that excessive subdivision of property could also be an encouragement to superfluous population, as Ireland was to prove before 1846. He observed that the redistribution of property in France after the Revolution had had beneficial effects in making the labouring classes more self-reliant, and 'more-saving, and more prudent in marriage than formerly', thus showing the superiority of the French revolutionary system over the English scheme of parochial relief. In this observation, he foreshadowed the findings of Le Play and other French Sociologists.

7.10 In general, we are here concerned with theories concerning human behaviour, with voluntary or involuntary movements of population through alternations in the pattern of fertility, against a background of social and economic change. This classification creates difficulties. We cannot be certain what a 'theory' means in this context. There are no obvious or widely recognized tools of analysis. We know very little about the precise relationship between the fertility changes in the foreground (which can be measured statistically) and the social and economic changes in the background (which can often be described only in rather vague terms). One could ask, for instance : are we basically dealing with changes caused by non-economic factors, but leading to far-reaching economic effects, or are we mostly dealing with the effects of economic development on the composition of human society ? Both kinds of questions have been asked, and the answers often treated quite separately from each other. Again, many works have appeared putting forward a theory (or hypothesis) concerning the connection between movements in fertility and one aspect of the background pattern (e.g. education) without reference to the rest of the possible influences.

7.11 We can attempt to investigate the matter under these headings : (1) What contribution to the subject is made by the specialized approach of economists and sociologists ? Can fertility theory be simply a part of a general economic theory of development ? (2) What, in essence, is this 'standard-of-living argument' now so widely accepted as the principal determinant of fertility changes by a great number of writers, and can it stand as part of a general theory in the light of recent developments ? (3) What are the fundamental difficulties which appear to be inherent in the subject, and do these differentiate population studies from other social sciences ?

8.0 *Marriage and Fertility :*

The essence of the economic interpretation of population growth is, of course, that marriage and fertility are governed by the amount of available employment and means of subsistence in real terms, as was pointed out in the discussion on Malthus. Typical 'economic' statements on population determinants in Marshall show at once that there is *nowhere* a belief in simple economic determination :

> Given the climate, the average age of marriage depends chiefly on the case with which young people can establish themselves, and support a family according to the standard of comfort that prevails among their friends and acquaintances; and therefore it is different in different stations in life.

Only under conditions of practically unlimited expansion, as in the new territories in the United States of America, are additional children an unqualified aid to their parents. In medieval England labourers married when there was a vacancy in the village, and not otherwise. In the eighteenth century Marshall thought, a fairly rapid growth of population was ensured by demands for labour in the growing industrial districts, where the birth-rate was very high. In the nineteenth century, he found, the marriage rate varied with the quality of the harvest.

8.0.1 These statements do not mean that Marshall believed that prosperity and economic opportunity could be taken in isolation. They are constantly linked with observations on the checks to marriage and fertility, which are either, in fact, sociological observations, or imply such observations. In the passage quoted, it is the customary standard of living in the society in which the young people live which checks marriage. He thought that the slower growth of population in the first half of the eighteenth century was 'partly caused by, partly the cause of, a rise in the standard of living: a chief element of which was an increased use of wheat in the place of inferior grains as the common food of the people. If he meant these words as they stand, they make nonsense of the classical view, since what they really convey is this: a population of a given size, growing slowly, changes over to a type of food not so readily procurable as that to which they had been accustomed (cause not stated). This change is made possible by the fact that the increase in numbers is halted (cause not stated, but implied that the higher standard demands greater care before marrying or having children)...... In turn, the arrest in growth makes it possible for further sections of the population to adopt the new mode. The arrest is then made almost permanent by the fact that the harvest will occasionally fail, thus inculcating even more prudence than usual.

8.1 *Factors affecting Fertility*:

Whatever the state of economic development, the question of forecasting the number of births may be put forward, if only for the sake of being able to make some kind of judgment about the future. The most liberal person, the most convinced opponent of State intervention, should surely wish to know what is going to happen in this or that country, even if it is only to be in a better position to defend his liberal convictions. But some very different questions may also be asked, in the following order:

Can a spontaneous lowering of the birth rate be expected?
With how much delay?
Should one wish or hope for it?
Should the government authorize methods of preventing births?
Should the prevention of births be encouraged? By what means?

Dr. J. De Castro, who has written so eloquently on the geography of hunger and fought so courageously for the poor and under-nourished countries, has estimated that a lowering of the birth rate may in fact result directly and spontaneously from economic improvement, through a purely physiological mechanism.

8.1.1 Hunger, he said, over-excites sexual appetites, and the lack of animal proteins increases fertility. Let people be better fed, with adequate rations of meat, and physiological fertility will decrease.

8.1.2 Experience does not confirm this opinion; there is no evidence at present to suggest that well fed populations are physiologically less prolific than others. The French Canadians, for example, who did not resort to birth-prevention for the whole of the nineteenth century, had an extremely high birth rate, in fact the highest ever observed. They also had a fairly high consumption of meat, and therefore of proteins. Then there is the curious society of Hutterites in the United States to-day. They are well-fed, but do not wish to resort to birth-prevention. Their fertility is as high as that of poor countries. The same applies to Italian families, etc. who for religious or other reasons, do not wish to limit the number of children they have.

8.1.3 It is true that well-fed societies (Western societies, for example) have fewer children, in general, than poor and undernourished societies. But the reasons for this correlation are social. It is in the most developed societies that contraceptive practices are resorted to.

8.2 *Birth Control:*

Thorefore, apart from surgical sterilization and the eventual discovery of the pill there can be no question of relying on physiological sterility. It is the prevention of births we have to discuss, that is, a voluntary limitation in the number of children.

8.2.1 In any society, the number of births depends on the amount of celibacy and the age at marriage. If marriage is the fundamental institution, the births are more or less proportionate to the number of marriages. The age at marriage also plays an important part in countries where there is still natural fertility.

8.2.2 Thus it was that in the eighteenth century, the contraction of marriages later than immediately after puberty could bring down the possible number of children per family from 10.2 to 6.5.

8.2.3 Celibacy and the age at marriage may vary spontaneously or under the influence of legislation.

And then there is the fertility of couples :

8.3 *Birth Control Methods:*

Every couple in cohabitation is subject to the laws of fertility. The methods known at present to evade those laws are :

Total continence, the method advocated by Malthus. But from our point of view, it is more precisely a question of abstention from natural coitus, and not necessarily from all sexual intercourse.

Periodical continence, based on the woman's periods of fertility.

Contraceptive methods, which prevent conception.

We may distinguish the natural methods, whereby no product is used (simple ablution, coitus interruptus) and the active methods, among which the most important is the occlusive diaphragm invented by F.A. Wilde in 1838.

Abortive methods, which mean the stopping of pregnancy.

Provisionary or permanent sterilization of one party.

These methods taken all together could further be described as voluntary sterility or, more exactly, 'voluntary infertility', if the term 'sterility' include the meaning of permanent sterility.

8.4 *Some More Factors Affecting Fertility*:

This question is little known, because in some aspects it demands a delicate statistical analysis which no clinical or laboratory research can provide.

8.4.1 A couple living together from puberty to the woman's menopause shoul have an average of 12 children (12 births, more precisely), if they do not resort to any antinatal practice. The works of L. Henry and P. Vincent have thrown further light on this. In their different ways, they have both shown that the fecundity of a woman (or capacity to participate in reproduction) does not decline with age, as is so often believed.

8.4.2 For a fecund woman, the probability of conception during the menstrual cycle is about 10 per cent around 17, rises to 13 per cent from 21 to 23, then diminishes only very slowly to 10 percent at 43. No observations have been made beyond that age.

8.4.3 But the proportion of fecund women decreases constantly, whereas the age of women increases. The combination of these two phenomena has led people to believe that the fecundity of woman decreases with age, but in fact it drops suddenly, on a given day, from 10 or 12 percent to zero.

8.4.4 In most cases the will is not exercised as regards maternity, but as regards sterility, since the norm is over exuberant fertility. Of course there are provisionally sterile families that have to make special efforts (medical care etc.) in order to have children. But in a large majority of cases, children are born to a couple without any will being exercised, as they are born to animals. A couple may decide to prevent birth for a determined period. But they cannot decide to have a child during that period, only to give nature all its changes (a little over 10 per cent per cycle, as we have seen, for women who are still fecund.

8.4.5 A woman cannot decide to have two children after she is 26. All she can do is to have no child before she is 26, by making a perfect use of contraception.

8.46 All the preventive methods enumerated above demand a fairly strong effort of the will.

9.0 *Birth Control and the Social Strata and Economic Conditions* :

Why did the limitation of births begin in the superior social classes which had a high standard of living and some education? This difference of behaviour arose out of intellectual dispositions, and a spirit of foresight and prudence, but also for materialistic reasons. In peasant families, the child had long been considered as a kind of property that could bring income, for he worked from the earliest age. This habit of making children work naturally spread to the new industries, without really causing any scandal except retrospectively. Compulsory education changed the family's economic balance-sheet without at once changing the attitude and behaviour that resulted from it :

9.0.1 But in non-manual environments, one factor rapidly grew in importance, and this was 'social capillarity', to use a term of Arsene Dumont. The reduction in the number of children arose out of the parents' worry about their children's prospects of climbing up and their own fears of sliding down. Education became even more important than saving, in all clerical, white-collared families.

9.0.2 In these conditions, the reduction in the number of children has not been accompanied by a lessening of affection towards the child, as it was in the eighteenth century; one might even say that the family has been reduced to one or two from an excess of affection, concentrated on one or two.

9.0.3 Leisure, culture, comfort, foresight, education of children and social ambition, together with a weakening or changing religious or traditionalist spirit, these are the main factors that played their part in countries affected by the 'demographic revolution'.

9.0.4 When the standard of living, and, especially, the standard of culture, are sufficiently high for fatalism to give way to foresight in all families when women gain independence or are ready to do so, when the care given to children is national and sufficient, the ground is favourable to the limitation of births. The advice given in special clinics the sale of contraceptive products, and a good propaganda showing the dangers of an over-rapid growth in population, all these can have a palpable influence.

9.0.5 And since a reduction in births itself leads to an improvement in the standard of living, the process is self-generative.

9.0.6 The standard of living of an increasing population may be represented by a curve, or more exactly by a series of possible curves in time. Such a curve may show a critical point. If, in spite of its progression, the standard of living remains below this point, the Malthusian process cannot get started, the population growth wins and the standard of living plunges back into the depth of poverty. If, on the contrary, that threshold is passed, the Malthusian process leads to an accelerated improvement in the standard of living.

9.0.7 In a very poor population, the prevention of births may still be attempted, but must be aimed especially at the leisured or middle classes, who can then serve as an example to others. If the standard of living manages to rise, time will have been saved.

9.0.8 Quite often, the economic level and the cultural level increase together as parallels; but if a choice is necessary, it is the cultural level which ought preferably to be encouraged.

9.0.9 One may agree with the broad observations of F. W. Notestein. Human fertility responds scarcely at all in the initial and often superimposed stages of such changes—changes that too often influence only the external of life and leave the opportunities, hopes, fears, beliefs, customs and social organizations of the masses of the people relatively untouched. These latter are the factors that control fertility and since they are unmodified, fertility remains high.

10.0 *Family Planning in India* :

There is no doubt that India is the poorest country in the world, the country where poverty is most widespread, both in the towns and the villages. Moreover, since China went over into the Communist camp, India is the most important in the non-communist world, with the most acute economic problem.

10.1 *A Few Factural Premises* :

The population rose above 400 million in 1958, now above 560 million. The density of 310.8 inhabitants to the square mile is about 50 per cent higher than that of France.

10.1.1 Growth is less rapid than in other countries, because of the very wretchedness, which causes death and perhaps also physiological sterility. But, as we have seen, poverty does not stop procreation, while people living in abject misery are enabled to live much longer to-day, thanks to the progress in medicine and hygiene. Moreover, slight economic advance would cause a further reduction in the death rate thus setting up an auto-resistance.

10.2 *Birth Rate and Fertility* :

For lack of precise statistics, the birth rate must also be estimated. From 1941 to 1952, only 27 births per 1,000 inhabitants per average year were registered; but this figure must be raised by more than half, to allow for the unregistered births, which gives a birth rate of over 40 per 1,000. This is the norm of under-developed populations. The birth rate cannot have varied much since 1952.

10.2.1 Since it was impossible to establish detailed global statistics in this vast mass of 560 million inhabitants, partial polls and investigations were undertaken. In any case the Indians are excellent mathematicians and statisticians.

10.2.2 Here are the results of an investigation carried out over 1,018 women of Lucknow and Kanpur, in 1956-7 ;

These are the number of children of women over 45, according to the religion :

Hindus :	Superior Caste		7	children
	Inferior Caste		8.5	,,
Moslems			8.4	,,
Christians			5.8	,,
	Together	...	7.8	,,

The number of children in the inferior classes is very high. The slight difference is more emphasized in a division according to cost of living :

Class	I	Rich	...	6.5	children
Class	II	Middle	...	7.2	,,
Class	III	Poor	...	8.2	,,
Class	IV	Very poor	...	8.3	,,

The investigation also established the percentage of women who, at some point in their lives, resorted to contraceptive practices :

Hindus	%			%
Superior Caste	20.2	I	Rich	32.7
Inferior Caste	—	II	Middle	23.1
Moslems	4.6	III	Poor	9.1
Christians	23.1	IV	Very poor	—
Together	10.6			10.6

Here the differences are even more marked, contraception being relatively widespread in the superior castes or the rich classes but unknown at the other end of the social scale.

10.3 *Family Planning Measures* :

The second five-year plan allocated a sum of 50 million rupees (about 90,000 dollars), to open clinics for contraceptive advice. In 1958, the Minister of Publie Health decided to distribute contraceptive products free in thousands of villages. In the State of Kerala, bonuses are given to people who get themselves sterilized.

Research has moreover been on the sterilizing pill, in particular, by Dr. Sanyal. In 1958 a high official stated that India needed a dozen factories to produce contraceptive pills. This somewhat vague declaration can at least be interpreted as an intention.

We should not, however, expect a rapid decrease like that of China or Japan. Contraception will spread easily only among families enjoying a certain ease and a certain cultural level. The Parsees, have long ago reduced their birth rate to the level of Western populations.

Medical improvements may even, in an initial phase, cause an increase in the birth rate through the reduction of miscarriages, dead births and physiological sterility.

11.0 *Family Planning In Tamil Nadu* :

In the beginning advice was confined to temporary appliance methods. In 1958, a Scheme was introduced to promote the surgical method in Family Planning for Public Employees in the city of Madras. In 1960 canvassers for bringing people for sterilisation was introduced. The canvassers were paid Rs. 10/- for each case. All Government Hospitals and Public Health Centres wore developed and doctors trained to do surgical operation for sterilisation. Certain private organisations also were approved and paid Rs. 10/- for each vasectomy and Rs. 25/- for Salpingecting operation. It was found that unless the community as a group accepts the principle of small family size as desirable through propaganda, family planning may not result in the desired objective. For this education of people in the social value of small family and adequate knowledge of the various methods along with facilities for permanent methods through surgery and other contraceptive methods are necessary. Accordingly, the Government of Tamil Nadu established District Family Flanning Bureaux and also a number of welfare units to carry out the Scheme.

11.1 *Some Statistical Measures of Family Planning Work in Tamil Nadu* :

At the same time confidence has to be created in the people. So Maternity and Child Welfare were integrated with family planning to make them understand that child mortality will be reduced. As a result of a well organised programme of work the total number of people who have undergone operation till 1971 are as follows :

Vasectomy	...	10,58,980
Tubectomy	...	1,21,578
I. U. C. D. (Loop)	...	1,76,066
Users of C. L.	...	2,49,892

11.1.1 The recent census in 1971 has estimated the population of Tamil Nadu of 41,103,125 as against 33,686,953 in 1961 census. This means a growth at 22.01% over the decade while the All India Growth rate is 24.07%. The growth of population in Tamil Nadu has doubled in the 60-71 decade compared to that of 51-61 decade. The population of Tamil Nadu had increased from 19.3 millions to 41.1 millions during the period 1901 to 1971. Urbanisation seems to be more rapid in most of the districts of Tamil Nadu. In 1969, 20.8 per cent were living in urban areas in 1971 this has increased to 34.8 per cent. As for literacy there has been a steady growth registering an increase of 53.01 per cent in 1961-71.

11.1.2 According to official statistics—the birth and death rate shows a birth rate of 28.7 per 1,000 and a death rate of 11.4 per 1,000 in 1969. But we cannot depend upon this figure as a number of births and deaths are still not properly registered in the rural areas. The State Planning Commission computes the current birth rate at 32 per 1000.

11.1.3 It is estimated that the population would increase from 4.11 crores in 1971 to 4.73 crores in 1979, and 5.28 crores in 1986. The marital fertility ratio varies from 38.9 at the age group 40-44 to 30.1 at the age group 20-24. From available statistics it is seen that people of the age group of 25 to 29, the per centage of people accepting the family planning is the highest ; vasectomy 32.5, Tubectomy 46 while for I.U.C.D. the age group 30-34 is the highest at 35. It is found that sterilisation is cent per cent effective in preventing birth. In the case of I.U.C.D. women have no birth after the 50th year and by this time she would have terminated the loop.

11.2 *Indian Traditional thought and Current Changes in Tamil Nadu.*

In India the country's economy has depended on agriculture and the majority believed that a child was an asset. Further the Indian culture is oriented towards large families but now there is the indication that both in the urban and rural areas a desire for smaller family is spreading. This may be due to the work carried out under family planning scheme and also due to increased desire to have the children educated to the degree level.

11.2.1 The proportion of eligible couples estimated to have preferred different methods upto October 1971 is about 14.6 per cent. This is higher than National level.

CUMULATIVE PERFORMANCE PER 1,000

		Tamil Nadu	*India*
Sterilisation	...	26.1	17.4
I.U.C.D.	...	4.1	7.4
Conventional contraceptives	...	5.5	4.1

11.2.2 Tamil Nadu has 11.3% of the total sterilisation while All India rate is only 7.5%. There has been a steady increase in I.U.C D. and conventional contraceptives in the last three years. It is expected that the effect of family planning will be a reduction of 3 per 1,000 in the birth rate when compared to conditions where there is no family planning.

11.2.3 One question is how far the family planning propaganda affects other aspects of life and society. For example what class of people are influenced and what class of people are untouched by these attempts to educate people to control and have small families. From the economic point of view we have to take note of the quality of the population and see what percentage of our population are unwanted. In this country owing to the influence of certain beliefs a sizable section are not producers while they have to consume to exist. Therefore we have to consider how this kind of population should have to be limited so that those who add to National dividend are not burdened to maintain a fair size of non-producing class of people who become a liability in a welfare state. From available statistics which are not complete, I find that in Tamil Nadu there are professional beggars to the tune of 1 lakh and this is a very low estimate. In addition to this 52 thousand people are in mental and other institutions maintained by charitable bodies. This 1,52,000 is a very very low estimate.

11.2.4 In addition to these two classes, we have to add those who are suffering from communicable diseases. All these people have a higher rate of fertility than the average healthy human being. Further, we have to add the habitual criminals who also belong to the non-producing class of people as they also do not add anything to the national dividend.

11.2.5 In the case of an indigent woman Margret Jukes who lived near the Hudson in U.S.A. it is estimated that in the course of 50 years her descendants had increased to 200 in number and have been costing the USA a sum of more than one million dollar a year to maintain them. Almost all of them are either in jail or lunatic asylums or in homes for the indigent.

12.0 *Outlook for the future :*

If we want to develop into a full scale welfare state which is our aim, we should also see that these classes of people are not allowed to contribute to the increase of our population and it is very necessary that these classes of non-producing consumers are slowly eliminated. For that the present method of family planning alone cannot do. We need legislation for compulsory sterilisation of these classes so that a healthy and economically useful class of people are brought out.

12.1 The nation should aim at a high level of efficiency in its people. For that mere limiting the size of the family is not enough and that too of the useful section of the community. The unwanted class has to be eliminated. The habitual criminal, the

mentally defective; the class of people who suffer from diseases like leprosy and other communicable diseases should be compulsorily sterilised. Some people feel that in a democracy we cannot use force. Are we not now directly under many restrictions? (Our taxation system, the expected legislation of limiting the size of land-holding, the limiting the total wealth of an individual) all these are laws that restrict human liberty. If we can do this to the class that contribute to the national dividend, can't we compel this unwanted class not to add to our burden?

12.2 The idea of contraception was almost non-existent twenty years ago; ten years ago it encountered strong and apparently insurmountable opposition. And yet the idea made its way, from the sheer pressure of facts and also thanks to independence, which gives a nation a sense of its responsibilities. Under British rule, it would have been easy, with a population so ignorant of demographic facts, to misrepresent any government initiative as a sort of genocide or biological war.

12.3 Even so the economic advantage that would result from a limitation of births does not solve the problem, since such a move can only succeed in populations that have a higher economic and cultural level.

12 4 Appreciable economic progress has been recorded in the last few years, as we have seen. It is encouraging, but quite inadequate. This whole bnsiness, like many others, is a matter of time. It is not enough to pronounce in favour of this or that solution; one must also see to it that the solution is achieved in time. The danger is not of a famine reducing the population back to its celing, as it used to be, but of multiplying in abject misery.

SELECT REFERENCES

1. The Study of Population—An Inventory and Appraisal, Edited by Philip M. Hauser and Otis Dudley Duncan, 1961.
2. "Social Theories of Fertility and the Malthusian Debate", by D. E. C. Eversley, 1959.
3. "Fertility and Survival" by Alfred Saury, 1961, and
4. Matter gathered from the Directorate of Family Planning, Tamil Nadu Government,

* * * * * *

In the discussion on the paper at the Seminar in the Seminar room at the Madras Institute of Development Studies on October 26, under the Chairmanship of Prof: S. R. Ramanathan, Joint Director, Scheduled Castes Project, Madras Institute of Development Studies, various aspects—sociological, economic, psychological—of policies directed towards population control as well as problems met with in implementing and evaluating family planning programmes came under candid review.

It was agreed that it was not desirable that those who were insane or had criminal proclivities or carried the burden of inheritable diseases should be allowed to pass these traits on to afflict the next generation. This unproductive segment of society apart from being a charge on the public exchequer is also believed to be highly fertile. There is, however, no arbitrary or simple way to deal with this problem and a constructive policy of effective control is not easy to evolve in terms of existing socio-religious attitudes or in a democratic frame-work.

With reference to Indian conditions, it was pointed out that the problem was primarly one of achieving an egalitarian society which emphasised the general welfare of all its constituent sections. Policy had not only to take into consideration the basic ratio of food and population but should not also overlook other development criteria like the quality of population. In any event in an affluent society a restriction of numbers was almost an automatic consequence. In this context two instances were cited—of pre-war France where alcoholism led to a decline in population and of present day Hungary where the Government efforts to raise the birth rate met with certain amount of resistance in the shape of a preference for consumable durables.

The discussion touched upon certain very specific problems faced by family planning programmes in India. An objective evaluation of the impact of these programmes was considered to be very difficult as statistics were haphazard and unreliable and were vitiated by the mercenary nature of the incentives offered to the canvassers who brought in cases for vasectomy or salpingectomy and to the doctors performing these operations. The entire system came under strong criticism as being conducive to coercion and abuse. A programme of sterilisation which did not depend upon cash payments and intermediaries was felt to be an urgent need.

There were adverse comments on another aspect of population control policy, namely the legalising of abortions. It was felt that the situation did not warrant so drastic a measure and further insufficient attention had been paid to the various physiological and psychological problems following resort to abortions. The difficulties created were likely to outweigh and benefit in terms of numerical control. The only really justifiable use was perhaps for unfortunate unmarried mothers.

It was accepted that the general tendency was towards a higher birth rate among the poorer sections of society. There was general agreement that opportunities for wider social activities and recreations might prove useful in actieving some modification of this trend in this segment of the society.

Propaganda through popular media was not considered sufficiently effective, being crude and limited in approach. A multidimentional approach was necessary to evolve forms of propaganda oriented to varied group and individual motivations if population control and of family limitation were to become a part of national thinking.

The spiritual aspect of the problem was also touched upon. To the Indian mind control of senses is only part of the general process of sublimation and self-discipline and not an isolated phenomenon.

The immediate necessity for research in all aspects of family planning and the collection of dependable statistics were considered imperative for evolving further policies and evaluating existing ones.

SMALL INDUSTRIES IN THE FIFTH PLAN*

The Setting

The two major consequences of our low performance and stagnant economy are : (a) the 220 millions of our people living below the poverty line of Rs. 20 per person per month at the 1960 rupee according to the Union Government statement to the August session of the Lok Sabha and (b) the 14 millions of unemployed according to the estimate published in the Draft Perspective Plan Frame of the State Planning Commission, Tamil Nadu. The two are inter-related in the sense that the unemployed are part of the poverty sector : they do not however overlap because the larger poverty sector includes the underemployed who have not been statistically computed as well as the non-working dependents. Income augmentation for the poverty sector and employment generation for the unemployed plus the 1,20,000 new entrants every week into the labour force are the priority objectives of the last two years of the current Fourth Plan and the prospective Fifth Plan.

Small industries (along with cottage and village industries, the extension of the new technology to small and dry farming and the rural works programme) are the means of attaining this double objective of income augmentation and employment generation. The Annual Survey of Industries data for 1960-66 shows that our basic industries, which are the infrastructure for our growth, are employment generating only to a limited extent. In our petroleum refineries, the productive capital for one additional worker is Rs. 3.7 lakhs and Rs. 1 lakh of capital employs 0.26 of a worker. Our basic metals industry demands Rs. 1.2 lakh capital for each worker and employs 0.8 worker for Rs. 1 lakh capital. So too our fertilisers, basic chemicals, iron and steel, electric light and power projects each demand around Rs. 1 lakh of capital per worker and employs one worker for each lakh of rupees. More generally as the Minister of Industrial Development points out, the texture of the economy a 100 or even 50 miles from Ranchi or Bhilai (Bombay or Nagpur) is not far different today than it was before the big plants were established there. On the other hand the small industries of leather products manufacturing requires Rs. 4,000 capital per worker and employs 25.1 workers per Rs. 1 lakh of capital; weaving apparel manufacturing requires Rs. 5,497 capital per worker and employs 18.2 workers per Rs. 1 lakh of capital; footwear manufacture requires Rs. 6,037 of capital per worker and employs 16.5 worker per Rs. 1 lakh of capital and similarly canning and fruit preservation, wood and cork products, furniture and fixtures, professional and scientific instruments manufacturing require upto Rs. 15,000 as capital per additional worker and employ upto 15 workers for Rs. 1 lakh of capital. *One moral* suggested in this analysis is that the scarce capital resources of the country should increasingly be canalised in the small industry sector, in order to generate employment and while the needed capital should also be invested in the capital intensive industries, the strategy for these industries in the Fifth Plan should be capacity utilization rather than capacity expansion. For such capacity utilisation, labour intensive technologies will have to be used, that is two or two and a half or even three shifts per working day.

---

* Extracts from the paper presented by Dr. Malcolm S. Adiseshiah to the Maharashtra State Small Industries Conference in October 1972.

Current Status

The development of small industries in the Country is really only a decade old and within this short time span a good start has been made in terms of the increase in the number of units from 36,000 in 1961 to 1,94,000 in 1970. Actually the units under the purview of the Small Scale Industries Development Organisation (SSIDO) has increased from 36,000 in 1961 to 3 lakhs in 1972. They are growing today at an annual average rate of over 21,000 units. Their volume of output and contribution to national income has also been steadily increasing. The value of gross output of the units covered by the small scale industries development programme in 1969-70 was Rs. 3,670 crores. The Administrative Reforms Commission computed that in 1965-66 that the small scale industries contributed Rs. 1,349 crores to the national income while the large scale sector contributed only Rs. 1,207 crores. The SSIDO estimates that with an investment of Rs. 475 crores, the small sector's gross production was Rs. 4,050 scores at March, 1971. The CSO data on net domestic production at factor cost by industry of origin over the sixties indicates a rather slow growth in output and value added by manufactures in the unregistered sector as compared to the registered sector. At current prices, the registered sector increased its output from Rs. 1,071 crores in 1960-61 to Rs. 2,483 crores in 1969-70, and the unregistered from Rs. 785 crores to Rs. 1,694 crores. The latter's proportional output contribution was thus over 40 percent. At constant 1960-61 prices, the registered sector's output was Rs. 1,763 crores and the unregistered sector's Rs. 1,129 crores. Here the latter's percentage contribution is well below 40. Thus while the small scale sector has been expanding, in terms of value of its output, it has been expanding at a lower rate than the large industry sector—that is 200 percent compared to 250 percent.

The actual employment provided by the small scale sector is difficult to compute in precise terms. It is employment generating but there is no date available to measure the precise employment picture. The Indian Institute of Public Opinion in its annual number for 1972, computes that 240 lakhs are employed in the small and village industries sector. Using the traditional definition of the Small Scale Industries Development Commissioner of Small Industries being those with a capital investment of upto Rs. 7.5 lakhs, the number employed in such units has increased from 58 lakhs 1965-66 to 65 lakhs in 1970-71. This is a very low employment growth rate of 1,40,000 workers per annum. A *second moral* from this analysis of the current status is that in terms of income generation and employment creation, the small scale sector is not performing in accordance with its potential remarked earlier.

Problems

The latest review of the performance of the small scale sector by the thirtieth meeting of the Small Scale Industries Board called attention to the triple lacks from the consumers' point of view. Small industries products prices are rising rapidly. Their delivery schedules particularly to the foreign importer are constantly being revised and lengthened. There is a continuing decline in quality and standards of the sector products. This is serious because the domestic and international market for this sector has now ceased to be a sellers market. A *third moral* that this canvass suggest is that the small sector is at the losing end with regard to consumer preferences for its products and this consumer dissatisfaction could become a major bottleneck to its development.

Fifth Plan Dimensions

The further development and performance of the small scale sector will depend on the interaction and consequences of a number of inter-related factors, which I would divide into five types of preferred protected facilities and the multifaceted managerial input. The preferred protected facilities for the small industry sector are comprehensive.

Infrastructure: The foremost facility is the growing infrastructure for small industry. The major infrastructure is the industrial estate which provides factory accommodation with its accompaniments of water supply, drainage, power, rods and in larger units a tool room, common lease shop etc. The five kinds of such estates are at present at the optimum—the conventional industrial estates with different kinds of industries, the functional industrial estates with services to one industry such as leather or electronics or ceramics etc., the ancillary industrial estates with production geared to a large industry such as wagon building, or Boiler Plant etc., the cooperative industrial estates with common plant ownership and private industrial estates with both planning and management in private hands. A supplement to this particular facility is the Developed Plots programme with basic amenities similar to the industrial estates. Todate over 500 estates at a cost of Rs. 42 crores have been established. The problem for the future that I see as the *fourth moral* is to extend this facility to the 200 backward districts in the States, where the impact of low incomes, poverty, unemployment and underemployment are severe. The proposal to establish 33 percent of the 1.5 lakh new units in the backward areas during the Fifth Plan must be firmly adhered to. I return to this major issue later in the paper.

Raw Materials: A second facility is raw materials supply to the small sector on a continuing and stable basis. Here the small industry sector faces the same serious shortages that the economy faces. The supplies of cotton, yarn, chemicals and above all steel have been both insufficient in quantity, erratic in rate of supply and cost push inducing in terms of steady and continual price rises. The basic raw material for the small sector, steel, will continue to be in serious short supply during the Fifth Plan and all that can be expected is for the steel allocations to the small sector to be given some priority and its ordered distribution ensured through the Small Industries Development Corporations of the State. A *fifth conclusion* is that as the basic raw materials distribution is coming increasingly under the control of the State, while their adequacy cannot be ensured, atleast their normal fair distribution between the units can avoid the present scramble, the enhanced recourse to the black market and the growing play of nepotism.

Machinery: A third facility is the provision of machinery. The States through their Small Industries Development Corporations (SIDC) and the Union Government through the National Small Industries Corporation (NSIC) help in the provision of machinery to the small sector. Under a hire purchase system, indigenous and imported machinery are supplied to the small units on a soft loan basis, that is on easy terms of loan repayment and low rates of interest. Here there are two problems—First this enabling facility should be decentralized in its execution and simplified in procedures. There is no need for the present cumbersome and time consuming procedure of every application for machinery being scrutinized, reviewed and approved at four points—the State Directorate, the Regional Office of the National Small Industries Corporation, Union Ministry concerned and the Delhi Office of the NSIC. On the basis of prior

allocations, the decisions can be made rapidly by the two offices in the State, who should be kept informed regularly about the machinery supply position in the Country. The Union Ministry concerned should not act as a fourth wheel. It can be represented at the decision making point when overall policies are established. The second problem relates to imported machinery and imported raw materials. Here even within the tight foreign exchange resources position of the Country, the small sector tends to be treated as the Cinderella of the economy. It is true that the small sector by definition uses less of imported machinery and raw materials and enjoys the economies flowing from using local resources. But as long as there are serious short falls in local industrial raw materials and machinery supply, the current allocation of Rs. 70 crores of foreign exchange is totally inadequate for its growth, effective functioning and employment generation. A *sixth moral* is that this facility of supply of machinery needs to be simplified procedurally and expanded quantitatively.

Finance: A fifth facility is the provision of credit to the small sector. Here both the current situation and trend is heartening. The small industrial sector is one of the priority credit sectors for the nationalised banks. The State Bank of India and the other nationalised banks, provide liberalised medium and short term finance to the small enterprises. They are authorised to operate a special scheme for craftsmen and technically qualified entrepreneurs. The percentage of credit to the small sector in reation to the total credit has increased from 8.3 percent in June, 1969 to 11.2 percent in May, 1971, from Rs. 75.33 crores to Rs. 868.41 crores. The number of small units financed by the banks have increased three fold to over 1 lakh during that period. In addition, as noted earlier, the National Small Industries Corporation has provided Rs. 40 crores to 10,000 small units as machinery credit. 149 credit institutions including commercial banks, cooperative banks and the State financial corporations are participating in the Credit Guarantee Scheme of the Reserve Bank of India, the total guarantees at March, 1971 being Rs. 791 crores. The craftsmen scheme, however, is still in the take-off stage. The problems in this area of financing the small industrial sector include first the need to extend the credit coverage from the present 30 percent of the total number of small units to something over 50 percent atleast by the end of the Fifth Plan. This may be attained if the Fifth Plan proposal for a government outlay of Rs. 300 crores and a credit flow of Rs. 1,600 crores from the banks, and a foreign exchange allocation of Rs. 300 crores are not only firmly established but also fully executed. The poor expenditure performance of the current Plan wherein only 34 percent of the Plan outlay has taken place in some States must be corrected. There are also various bottlenecks faced by the small units in receiving and using the credit available to them. A recent field survey on the manner in which credit facilities are being made available by the nationalised banks to the small industries sector brings to light several problems. Banks require a margin of 50 percent and above for term loans, the processing of applications takes a long time und customer service has deteriorated, loans are still made on the basis of collateral which the small unit does not have, lock and key type loans are more readily given than clean advances and working capital finance, export credits are restricted etc. The technician-entrepreneur scheme is being financed mainly by the State Bank and not by the others. The five self-employment schemes proposed for the Fifth Plan will depend for their effective execution on the technical guidance and financial support of all the banks. The sehemes include (a) self-employment of 8,000 engineers at a cost of Rs. 112 crores, with government contributing half the cost and Rs. 5 crores foreign exchangs for machinery, (b) training for setting up

small units using the 20,000 educated unemployed at a cost of Rs. 50 crores, (c) training of educated unemployed to develop rural marketing at a cost of Rs. 53 lakhs, (d) employing 10,000 engineers in existing industries, (e) helping technicians to become entrepreneurs at a cost of Rs. 20 crores from the nationalised banks. A *seventh conclusion* suggested is the strengthening of the technical staff of the nationalised banks and monthly meetings at the district level between the small units representatives and government and financial institutions to review and improve the functioning of this important credit flow facility to the small scale sector.

Legislation : A sixth facility relates to the places of legislation in the development of the small sector, a complex issue on which the Bhatt Committee has just reported. The legislation issue is complex because it is related to several inter-related facets and has indirect as well as direct implications. To start with the indirect, fall out aspects, the small scale sector has an abnormally high mortality rate and there is need for the three partners, State Governments, the Federation of Associations of Small Industries and the Lead Banks to undertake case studies—not simply generalised aggregative assessments—in order to identify the causes why so many important small ventures have not expanded and in what ways the three partners can help in overcoming these problems. A second issue is the multiplicity of agencies functioning in this area—the SIDCO, SIC, SSIDO, SISI, NSIC plus the financing bodies IDBI, IFC, ICIC, lead bank, EASR and State institutions. A vast Country like India needs a multiplicity of promotional and financial agencies and what is needed is not so much coordination or consolidation but a productive linkage among them so that there is a collective, massive and optimum impact on the small sector. A third issue is industrial dispersal and the opening up of backward areas to which reference was made earlier and on which acting on the Wanchoo and Pande reports, Government offers concessional finance (10 per cent subsidy) for small units if they are located in the 219 backward districts. But what is needed to make this scheme come alive is for an integrated development programme in those districts, which will provide a package infrastructure of cheap power, transport and marketing, banking, water and the social overheads of education, hospitals etc. Into which the small units can fit. And this can be done only through integrated planning at the district level to which the lead bank surveys and other adhoc techno-economic area surveys can be no more then contribuants. A fourth (direct) issue is the lack of development of ancillary small industries due mainly to the reluctance of the large industries, including the public sector undertakings, to use the small scale sector. Here the Bhatt Committee's draft legislation on guide lines for industrial licensing wherein large units must offload their parts, components, and sub-assemblies to the small sector and ensure prompt payment of their bills must be acted upon. A fifth direct problem is the reservation of items for the small sector. On the basis of economic feasibility and their technical competence, 128 items are reserved for exclusive production by the small sector. Now it is necessary as the Bhatt Committee has recommended for this policy of reservation to be legally enforced for a continuing period of say 10 years. along with provision to review the reserved list periodically in light of the changing demand for their products, the raw materials situation, the developing technology and managerial competence of the small sector. A final technical issue is the definition of the small sector—on which the Bhatt Committee is divided. The definition should be both comprehensive and flexible. It should cover the tiny units (upto Rs. 1 lakh), small units (upto Rs. 7. 5 lakhs) and ancillaries (upto 10 lakhs) and should be flexibly used to attain the policy objectives of income augmention

and employment generation. An ***eighth conclusion*** is that there is need for updated legislation to enable the small sector to play its part as suppliers of ancillaries for all large public and private units, for the items reserved for this sector to be established on a long term and rolling review basis, and for quality control (to be referred to later) to be enforced.

Management : A further facility concerns management, markets and product mix. Here again there are several related issues. First the development of the small sector should be left to the States. They are near the problems, potentials and prospects of the small industrialists, they know his needs and difficulties at first hand and they can respond quickly and effectively to his special demands. To discharge this responsibility the State Directorates need to be staffed with technicians and management specialists more adequately. The Union Government's role should be one of the facilitating and co-ordinating the promotional work of the State Directorates and action in the export area. Within this revitalised State frame, there is need for strengthened management training programme and consultancy service. Managers are not any longer born. They are increasingly made and the large number of unemployed engineers and technicians provides an opportunity to launch an educational programme to fill in the management gap which the small sector suffers from. Such an effort will also produce that climate of confidence and between labour and the management which has characterised this sector in the past. A second problem is help in developing the optimum product mix for each undertaking. The small sector lacks everything—adequate raw materials, machinery, working capital, technical management, marketing outlets. So far. these several inputs have been examined individually and useful plans and programmes to provide them individually have been developed and yet the mortality rate in the small sector continues to be high and the rate of the surviving units small. This single factor approach now needs to be replaced by helping each unit to develop the optimum combination of raw materials, labour, machinery and finance in each State and district. In one State that I am acquainted with, detailed project profiles together with their locational prospects have been developed for 39 units in mechanical engineering, 34 units in chemical and allied industries, 15 units in metals finishing, 17 units in food and allied industries, 20 units in glass and ceramics and 4 units in leather. One essential component that needs to be fully worked out for these 129 small scale project profiles to become gainfully operational is the product mix for each in precise terms. A third and serious problem faced by the small sector is the continuing deterioration in quality. This is affecting both the internal and external market. There is an alarming increase in the number of cancellations of our export orders, because the quality of our small scale products are not competitive. Hongkong, Singapore, Thailand and African small units products are replacing ours for reasons of quality. In the protected domestic market, the reaction of the consumer is not to substitute another Country's product because that is not available to him, but to stretch his existing supply, to seek for substitutes, with resulting increasing stocks with the small producer. It is high time that quality control is introduced in the small sector and enforced by legislation. For this the government must establish testing facilities and the recent announcement that regional testing centres are to be established at Delhi, Madras, Calcutta and Bombay should be acted upon quickly. The States through the SIDC must extend these facilities to each district. A fourth problem is to develop further the marketing facilities—both domestic and foreign—for the small scale sector. The present marketing outlets are inadequate and the single heavy reliance on the government

purchase cannot act as an instrument for the small sector's sustained growth. In some lines, the marketing problem has reached near crisis proportions. In the State referred to earlier, handloom stocks with the weavers have doubled in four months from Rs. 4 crores in May to Rs. 8 crores in August (the normal stock position should be less than Rs. one crore). The marketing problem is tied in with price acceleration which also needs attention. The States must set up marketing wings to SIDCO to meet this problem. Finally all planning, programming and implementation in this area is vitiated by the lack of a sound statistical base on the one hand and the absence of a continuing and ongoing research and development programme which can update the technologies of the small sector, adopt the sophisticated techniques to our conditions and investigate our local raw materials use, on the other. It is these essential intellectual bases—a reliable statistical data bank and R & D efforts—on which the effective growth of the small sector depends, that the States must make provision for in the Fifth Plan. My *final conclusion* is that the complex managerial component of the small scale sector with its inter-related needs of labour productivity, product mix, quality, price stability, and expanding markets needs attention and development if the promises made for the Fifth Plan are to be redeemed. And for that, we must begin action now.

BOOK REVIEW

Economics of Educational Planning in India :

by

C. B. PADMANABHAN

Arya Book Depot, Karol Bagh, New Delhi. *Rs. 15/-*

This is a book which explains the use of the tools of economic analysis in the planning of education. The constraints that have led to the adoption of planning techniques in the education sector are well known to us in India. The development of the techniques is also in a sense due to the pioneering work of UNESCO. Despite a decade of planning, our educational constraints in this Country have increased and raise the question whether the current educational investment is a promoter or inhibitor of our goals of growth and development. What Chapter I calls deficiencies of educational planning in India are pointed and precise but behind them are the constraints of education which are the starting point of the educational planner and on that nothing is said.

The next two chapters are a very good summary of the main economic concepts that are used in the planning of education. This requires a rather higher degree of knowledge of economics than the presentation implies. In this context the hints thrown out with regard to the production function, productivity, the margin and costs need to be further studied by anyone intending to use these tools in the planning of education. Further while the techniques of constructing National Accounts and their components are clearly set forth, the crucial relation of all this to educational planning is in the need to ensure the integration of educational planning in the overall national plan. Such integrated educational planning is still very largely a verbalism in all countries. Despite the theoretical constructions of integrated educational planning, in practice in all countries, education is planned as an autonomous sector and its relation to the National Plan subsequently rationalised. That is precisely what is happening in the national planning of education for the Fifth Plan. It is true that education is both a dependent and an independent sector of any National Plan. It is a contribuent to growth and social justice on the one hand and it has its own laws of consistency and para meters of development on the other. The neglect of the former aspect is due to the fact that the techniques of integration have not been adequately developed. It also flows from the lack of an over all strategy. A section on strategy and integration techniques might well have formed part of this useful treatise. In fact Chapters 9-12 which explain the principles of systems and net work analyses could well have been treated as a means of closing this gap—rather than simply as management tools.

The two best sections in the book are those dealing with financing, costing, budgetting, and the cost benefit analysis of education and manpower computation. The systematic collection and analysis of educational financial data is essential for any attempt at educational planning. The basic tool here is the unit cost of different levels and forms of education and the methodologies to be used for this purpose are adequately

explained. When it comes to computing the benefits of education, however, not only is there need to distinguish between the benefits accruing to the individual from those accruing to society, which is similar to the distinction between individual and social costs of education, the imponderables in any computation of benefits flowing from familial, social and institutional settings should be allowed for. The manpower projection section is a good one and could have been further elaborated. There is no need to be apologetic or defensive about this tool. It may or may not be true that "no country can afford to set up its targets for enrolments on the basis of manpower requirements for economic growth alone", but for a country like India it is a must in two areas—the very high cost professional education and training area and the area of higher education, given our resource constraints. This is an imperative and must be squarely faced by our higher education system which is in a mess and a state of crisis.

As in many economic monographs, some of the annexes particularly those on quantification and project preparation are instructive and might have been in the main body of the book while others like the Economic course for district education officers and education and economic growth of Asian countries are not of the same order of clarity or usefulness. In fact the book gives the impression of a series of lectures being put together rather than that of a cogent treatise. There are gaps covering out-of-school education and the content of education and the problem of how much educational research. Also the usual Western economic and educational models are used as the starting point and adapted to Indian conditions rather than starting from the fact of our pervasive poverty as the institutional setting and the special problem of planning in a continent like ours where nearly everything has come under some form of public control. The book, one of the few written on this new area of educational planning by an Indian economist, should be a stimulant to further thought and writing on this all important area of education—which has emerged as the major industry with the largest capital investment of the Country. A. J.

MADRAS INSTITUTE OF DEVELOPMENT STUDIES PUBLICATIONS

Publishers : (from whom copies may be ordered)
M/s. Sangam Publishers,
11, Sunkurama Chetty Street,
Madras-1.

I. Books Published :

1. Income-earning trends and social status of the Harijan Community in Tamil Nadu
   By A. Vagiswari (Price Rs. 10/-) Demy 8VO
2. Economics of Dry Farming in Tamil Nadu
   By R. K. Sampath and Jayalakshmi Ganesan (Price Rs. 12/-) Demy 8VO
3. Nutrition in Tamil Nadu
   By Rajammal P. Devadas (Price Rs. 12/-) Demy 8VO

II. In print :

4. A Guide to Research in Economics
   Edited by C. T. Kurien
   (Out by February, 1973)

III. Future Publications :

5. Rural Primary Education and Adult Literacy in Tamil Nadu
   By Alexander Joshua
6. Introduction to Mathematical Economics and Economics Statistics
   By N. Rajagopala Rao
   V. Lakshmana Rao
7. Rural Employment in Tamil Nadu
   By J. Viswanathamurthy
8. A State-wide programme for the low price supply of wage goods
   By M. Ramamurthy
9. Land Reforms in Tamil Nadu
   By G. Venkataramani

IV. Joint Publication by Madras Institute of Development Studies and Institute for Techno-Economic Studies for State Planning Commission.

10. **Techniques of Perspective Planning**
    Edited by Malcolm S. Adiseshiah.

(In print) Publishers : Tamil Nadu Government Press.

Regd. No. M. 8831

MADRAS INSTITUTE
OF
DEVELOPMENT STUDIES
(M I D S)

The Institute founded and run by Dr. Malcolm S. Adiseshiah is a charitable trust registered under the Madras Charitable Trusts Act.

The aim of the Institute is to contribute to the economic and social development in Tamil Nadu and India.

The activities of the Institute are :

- Studies and action-oriented research in micro-development problems;
- Documentation and library service in development programmes;
- Exchange and dialogue at the State, National and International levels on development issues;
- Publication of papers and research results of the institute.

St. Louis Institute Press, Canal Bank Road, Adyar, Madras-20
Editor: Dr. Malcolm S. Adiseshiah